

# THE IRON AGE

A Review of the Hardware, Iron, Machinery and Metal Trades.

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Reading Matter Contents.....page	686
Alphabetical Index to Advertisers "	189
Classified List of Advertisers "	180
Advertising and Subscription Rates "	188



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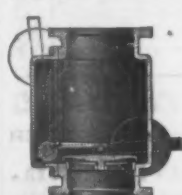
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# THE IRON AGE

New York, Thursday, February 28, 1907.

## A New Pratt & Whitney Lathe.

Practically all machine tool designing at the present time is undertaken with three objects in view—to provide for the use of high speed steel tools, to secure maximum producing capacity and afford greatest convenience in handling. These three considerations are in a large measure interdependent and might all be considered subdivisions of one main aim—to perform the greatest quantity of accurate work in the least time. Speed in work execution depends generally on two things, ability of the machine to take heavy cuts and to effect its movements rapidly. Augmenting one restricts the other, because the first requires weight for the sake of rigidity, and the second lightness for the sake of speed. Durability also demands a nice adjustment between too much weight

four-step cone pulley, is back geared and has exceptionally large spindle bearings lubricated with self-feeding and self-closing oil cups, which adequately lubricate for 24 hr. when filled. The headstock is bolted directly to the bed instead of using anchors. Fig. 1 shows a geared head lathe, with which eight changes of speed are obtained instantly while the spindle is running, even under load, by the use of three levers on the front of the headstock. The countershaft usually furnished with this machine has two speeds, so that in all 16 speeds are available, and the highest and the lowest can be obtained instantaneously. All of the shafts run in bronze bearings and the spindle runs in straight bronze bearings tapered on the outside for taking up wear. Wear is taken up on the outside of the head, the inside take-up nut having geared teeth on its periphery engaging with a pinion the shaft of which protrudes to the outside and has a square end

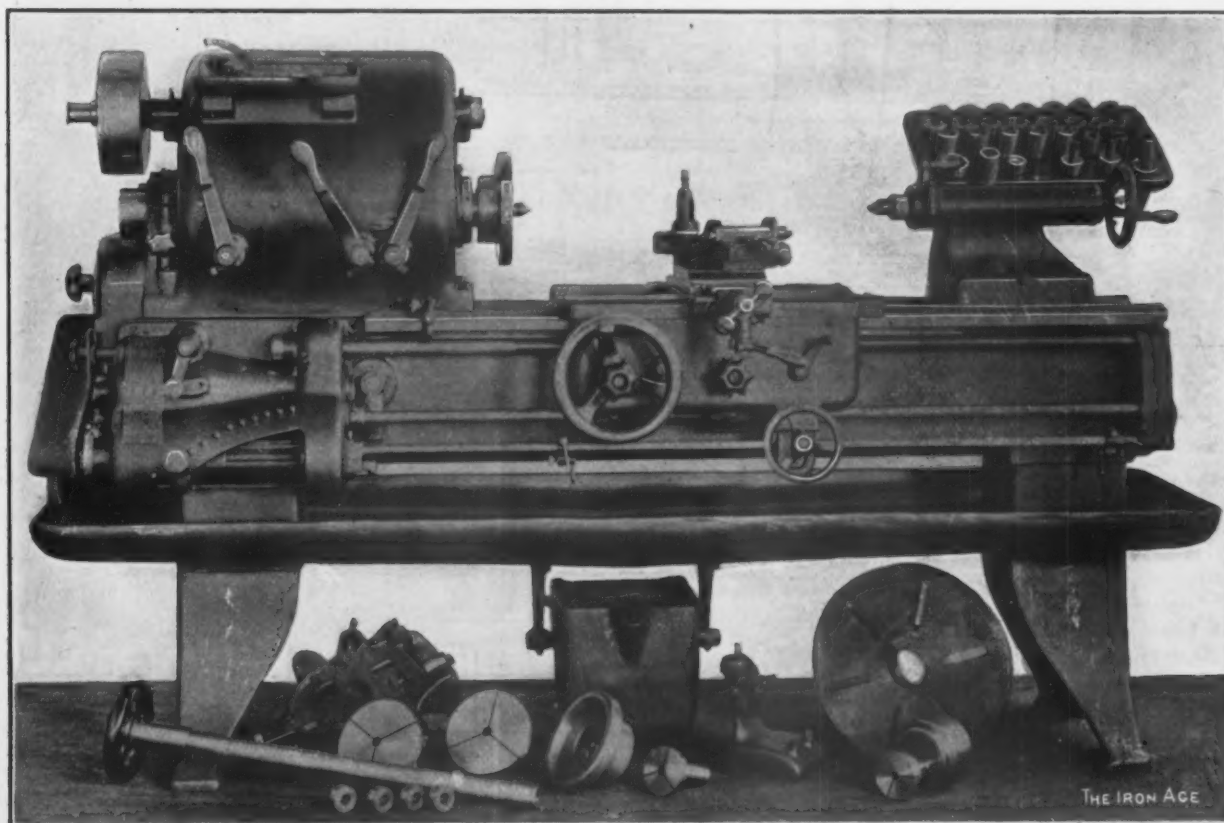


Fig. 1.—The Geared Head Pattern of the New 16-In. Engine Lathe Built by the Pratt & Whitney Company, Hartford, Conn.

and too little; strength requiring heavy parts and minimum wear light moving parts. The skill of the designer is measured by how well he harmonizes the conflicting influences and approximates the ideal conditions.

A machine which may be regarded as typical of design complying with the present popular demands is the new 16-in. engine lathe recently brought out by the Pratt & Whitney Company, Hartford, Conn. It is intended for toolroom use and for high class manufacturing, and embodies as improvements heavier parts where needed, better and larger bearings and supports and a number of new devices facilitating the operation and widening its range, all for the purpose of enabling the operator to turn out more and better work with less effort. The bed is of deep and heavy box construction braced internally with cross girts, and the metal is well distributed to resist bending and torsional strains and avoid vibration when the machine is working under the heaviest cuts.

The lathe is built in two types, with respect to drive, one with a cone pulley headstock and the other with a geared headstock driven by a single belt. The first has a

for a wrench. The gears run in oil and the friction clutches are powerful and durable. The ratio of the gears is 45 to 1. Any constant speed motor may be used for driving the lathe and may be mounted on top of the headstock and directly geared to the pulley shaft. The spindle is of steel, accurately finished and hollowed to receive the draw back sleeve. The end of the spindle is partly threaded, the remainder being conical, and the usual flange is omitted so that chucks can be brought close to the head with very little overhang from the bearing. The thrust of the spindle is taken by the rear bearing.

The following are the general dimensions:

Swing over the bed, inches.....	16 $\frac{1}{4}$
Swing over the carriage, inches.....	10
Greatest distance between centers on 6-ft. bed, inches.....	36
Ratio of back gears on cone headstock.....	9.1 to 1
Greatest ratio between pulley and spindle on geared headstock.....	45 to 1
Diameter of spindle, inches.....	2 $\frac{1}{2}$
Hole through spindle, inches.....	1 $\frac{11}{16}$
Front spindle bearing, inches.....	2 $\frac{1}{8}$ x 4 $\frac{1}{4}$
Rear spindle bearing, inches.....	2 $\frac{1}{8}$ x 3 $\frac{7}{16}$

The feed mechanism, which is similar in both machines, is driven from the spindle and may be disengaged by a knob under the headstock. It affords 41 different

A table and formula in front of the box indicate the settings to cut standard and irregular pitches. When cutting threads it is not necessary to reverse the spindle, the

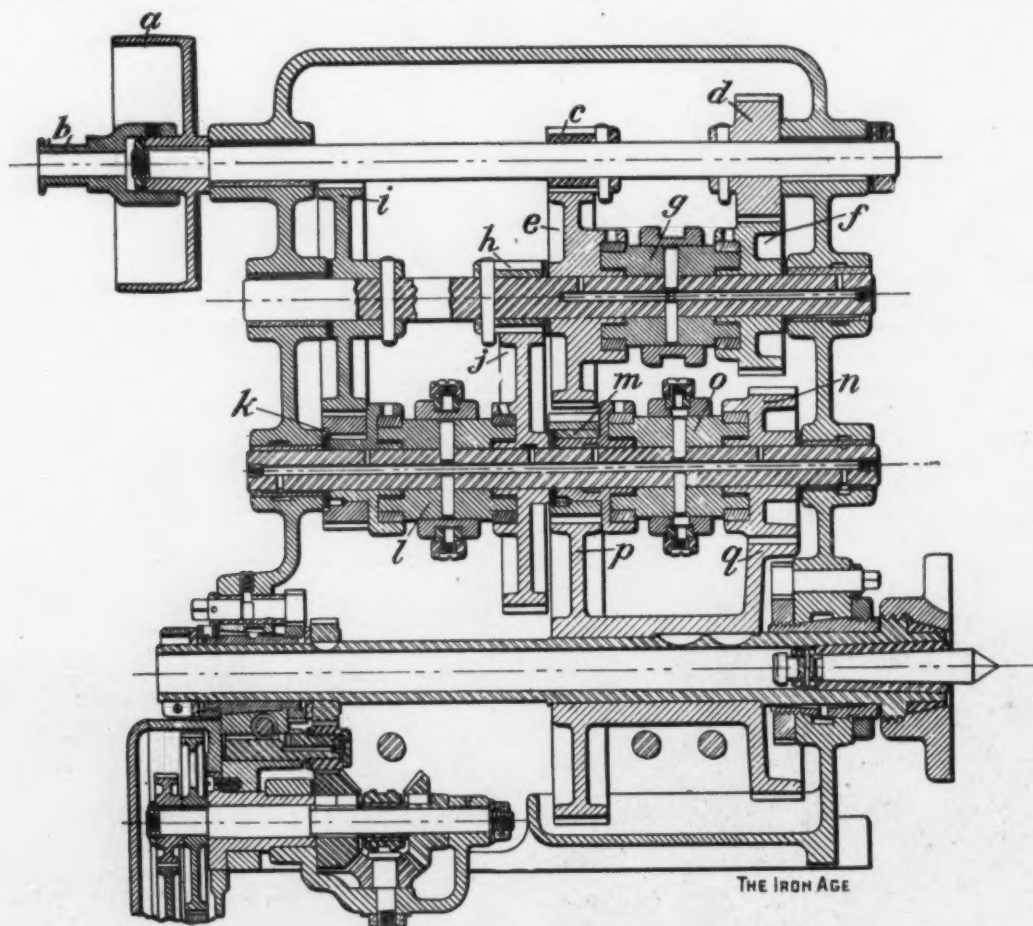


Fig. 2.—Sectional Development of the Geared Headstock.

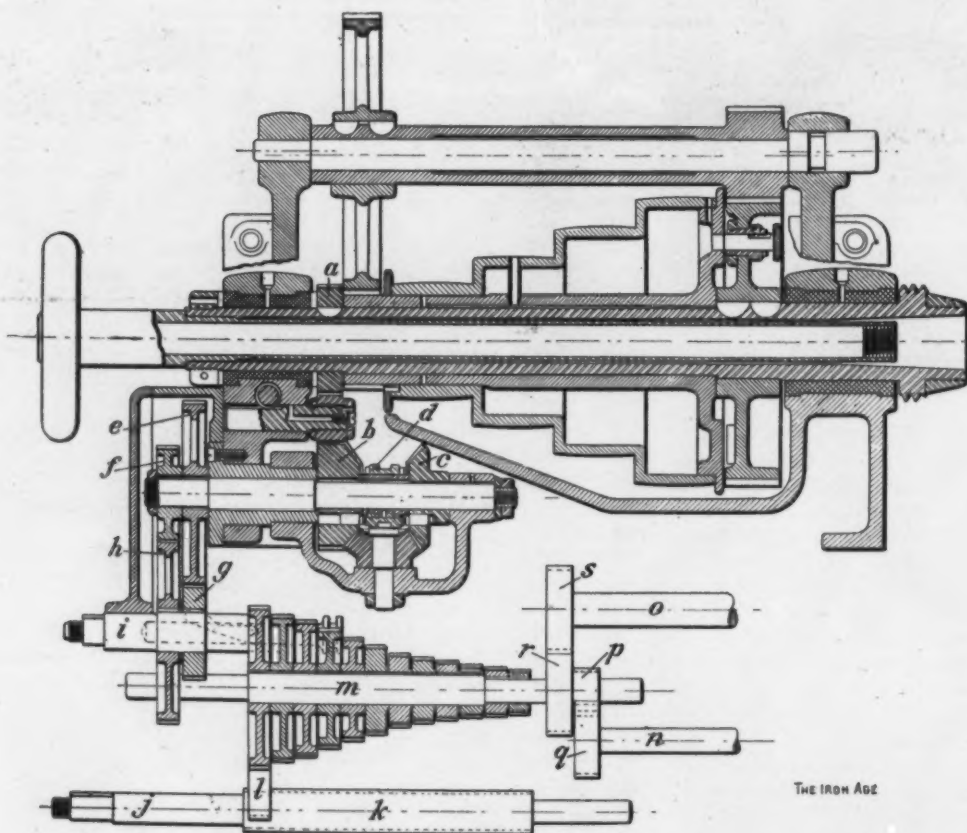


Fig. 3.—Sectional Development of the Cone Pulley Headstock and Feed Changing Mechanism.

leads for screw cutting and the same number of feeds for each speed (in either direction), the change being obtained by manipulating the two knobs shown in the front of the gear box. The gear box is of heavy construction.

lead screw alone being reversed either at will by the lower knob on the front of the apron or automatically at adjustable limits in the carriage travel, as described later. The sectional development of the geared headstock



given in Fig. 2 is sufficiently clear to need little description. The single belt driving pulley is shown at *a*. (The smaller pulley *b* attached to its hub is the driving pulley for the oil pump). The shaft driven by *a* carries pinions of two different sizes, *c* and *d*, which are pinned to it and mesh with loose gears, *e* and *f*, on an intermediate shaft. These gears all run continuously and either train may be made active in driving the intermediate shaft by the double clutch *g*, which is operated by the right hand lever on the outside of the gear box, as seen in Fig. 1. The gears *h* and *i*, permanently pinned to the intermediate shaft, mesh two gears, *j* and *k*, on the second intermediate shaft. These gears also run continuously and are alternately engaged to their shaft by the clutch, *l*, manipulated from the exterior of the gear box by the left handle. The gears *m* and *n* also run free on the second intermediate shaft, except when alternately engaged by the clutch *o*, controlled by the mid-

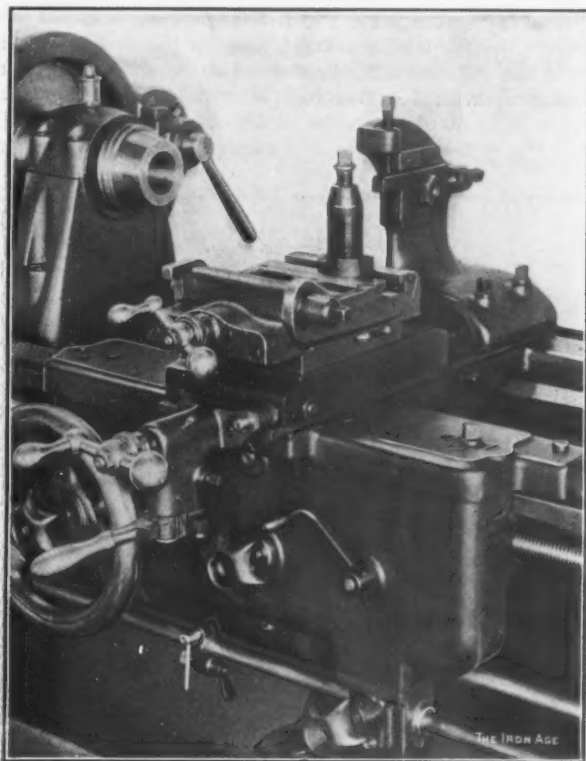


Fig. 4.—Detail of the Carriage Showing the Compound Elevating Rest, Follow Rest, Quick Withdrawing Mechanism on the Cross Slide and Adjustable Feed Reversing Stop.

dle lever on the outside of the gear box. These gears, *m* and *n*, respectively, engage gears *p* and *q*, which are in one piece and are fast on the headstock spindle. It will readily be seen that eight different speeds are obtained by manipulating the three clutches, each clutch being responsible for two speeds for each of the four afforded by the other two clutches.

The drive of the feed mechanism from the spindle may be seen at the lower left hand corner of Fig. 2. The complete and precisely similar mechanism, as associated with a cone pulley headstock, is shown in Fig. 3. Referring to the latter it will be seen that a pinion, *a*, on the spindle, through an intermediate gear, drives the pinion *b* which is in one piece with a bevel gear. The latter through an intermediate bevel pinion drives the bevel gear *c* on the same shaft with *b*. Both run loosely on this shaft, but may be clutched to it alternately by the clutch *d* to rotate the gears *e* and *f* in forward or reverse direction. This clutch has only one tooth, so that it will engage in but one position in a revolution. The gears *e* and *f* mesh with gears *g* and *h*, either of which may be engaged with their common shaft *i* by a dive key operated by the handle at the front just under the headstock. The interchangeable gears (not shown) used for various feeds and threads, go on the end of the shaft *i* and the shaft *j*, and transmit power to the latter shaft, which carries the long pinion *k*. This pinion may be connected with

any of the nest of gears on the shaft *m*, through the tumbler gear *l*, which is supported by a bracket that slides in a rocking sleeve surrounding the pinion, and is manipulated by a latch lever at the front of the box. There are 12 gears in the set *m*, therefore with each combination of interchangeable gears 12 speeds are possible, and these in turn are doubled by the two changes obtained with gears *e* and *g* in action or *f* and *h*. There are 74 possible combinations with the regular equipment

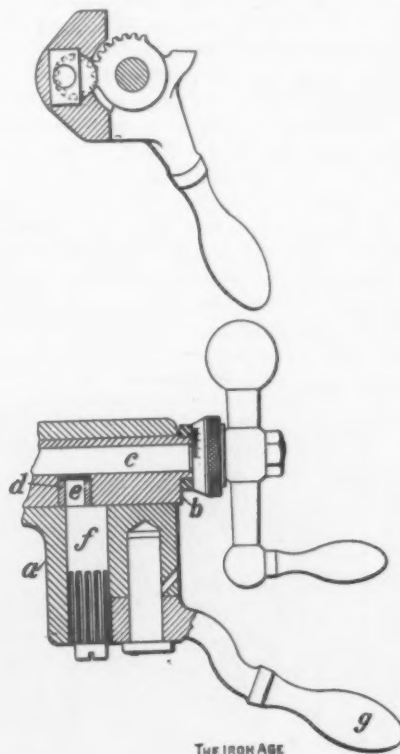


Fig. 5.—Plan and Sectional Elevation of the Quick Withdrawing Mechanism for the Cross Slide.

but some of these are duplicates in effect, there being only 41 different feeds or screw leads. The drive from the shaft *m* is communicated to the apron through the splined feed rod *n* for the longitudinal and cross feeds, and the thread cutting lead screw *o*, by gears *p* and *q* and *r* and *s*, respectively. All shafts are hardened and ground.

When cutting threads the spindle runs continuously in the forward direction, as before explained, and the lead screw is reversed, through the clutch *d*, Fig. 3, and a rack

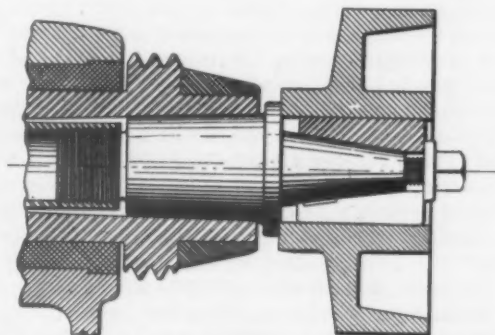


Fig. 6.—Section Showing an Expanding Arbor and the Manner of Holding Work.

rod which extends along the front of the lathe and actuates a lever mechanism. This rack rod is connected in the apron with a knob and pinion through which the operator controls all feeds as well as thread cutting reverses. Adjustable stops are mounted on this rack rod and are used to reverse the motion of the carriage for thread cutting or longitudinal feeding.

The tailstock is heavy with ample bearing contact, is offset to give more room for the compound rest, and is provided with a cross adjustment for alignment. The clamping is made quickly with an eccentric handle.

The carriage has ample bearing contact with the bed, being long and wide, and is guided by a V and flat track and is gibbed to both sides, thus preserving accurate and constant alignment. With the V and flat track for the head and tail stocks, it is possible to make the carriage bridge thicker. The apron is of double construction and all shafts in it run in double bearings. The longitudinal and cross turning feeds are obtained from the splined shaft through worm and worm gears, and cone frictions engage and disengage the feeds. The rack is located well under the V of the bed and is in as direct and short a line as possible with the thrust from the cutting tool, preventing the usual torsion of the carriage on the bed. The cross slide screws are provided with micrometer dials.

A large variety of attachments may be provided for use with this machine. An interesting one is the compound elevating rest shown in Fig. 4. The cross slide is made from a semisteel casting and the elevating part from drop forged tool steel. These two members are locked together and form a rigid combination. The tool post collar has steps for rough adjustment and for fine adjustment, the rocking motion from the elevating device giving the final adjustment without necessitating loosening the tool in the tool post, which is an especially desirable feature in cutting threads. A plain elevating

with a heavy gib to the dovetail on which the cross slide travels. This insures absolute rigidity and no springing action from the pressure of the cutting tool. The steady rest is nicely fitted with double milled joints, is very rigid and can be quickly adjusted. Other attachments of the lathe, which are not new, having been used on other of this company's machines in the past, are the drawback collet attachment and the step chuck and closers. The first is composed of a sleeve with a hand wheel, a hardened and ground closer and steel collets. All sizes of collets can be furnished from  $1\frac{1}{4}$  in. down. The regular sets include 15, ranging from  $\frac{3}{8}$  to  $1\frac{1}{4}$  in. The step chucks and closers are particularly useful for making subpress dies and other work where a finished piece must be held true, and also for the facing of thin pieces of large diameters. They are furnished blank, made of steel, in two sizes, one ranging from  $\frac{7}{8}$  in. to 3 in. in diameter; the other from  $\frac{7}{8}$  to 6 in. in diameter. Another special attachment is a step chuck and closer with adjustable jaws, which is something new and very useful in the toolroom for truing up pieces. By adjusting the soft jaws to the desired dimensions and truing them up with a boring tool afterwards, any size inside of 6 in. in diameter can be easily obtained.

Fig. 6 illustrates one of a number of expanding arbors,

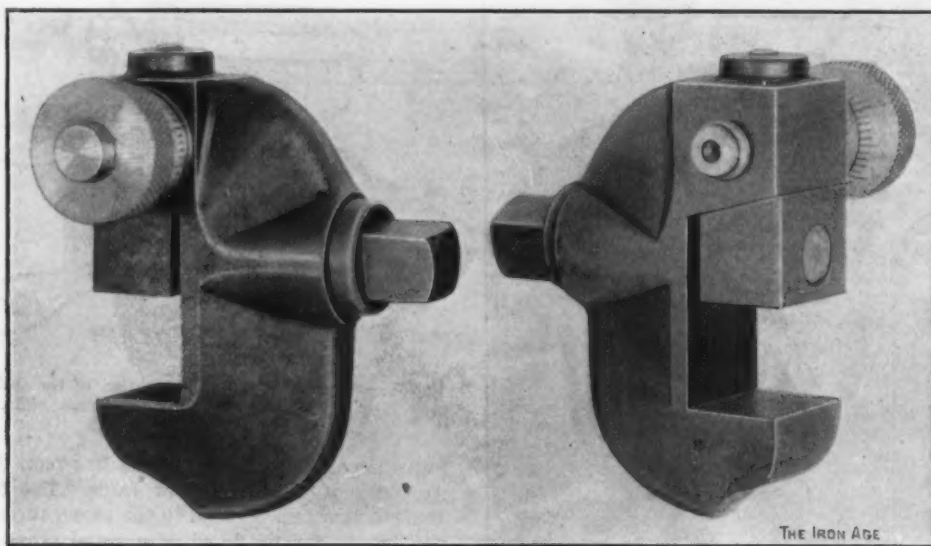


Fig. 7.—Two Views of the Micrometer Stop Used for Accurate Facing and in Thread Cutting.

rest of similar construction is also furnished when required.

A quick withdrawing mechanism which is very convenient when cutting internal or external threads is another new feature, and is illustrated in Figs. 4 and 5, the latter showing the parts. A frame, *a*, is fastened to the taper turning slide on which the cross slide travels. When the frame is fastened to the screw bearing *b* it controls the end of the screw *c*. In the screw bearing is a slot in which slides a hardened block, *d*. This block is operated by the eccentric pin *e*, which is part of the pinion *f*. A handle, *g*, has a toothed hub engaging this pinion. Moving this handle causes the screw bearing to be moved with an easy stopping and starting motion, carrying the screw and screw cross slide with it. Thus, it is not necessary to revolve the cross feed screw to withdraw the thread tool, and a positive stop is obtained without effort on the part of the operator.

The taper turning attachment is composed of only three parts: the bracket which is held to the bed with two bolts in a T slot, and can be adjusted readily along the bed; a swiveling bar which is held by two clamp bolts on top of the bracket, and a block which slides in the swiveling bar and is provided with a taper gib for taking up wear. This block is positively connected with a long slide running across the carriage and on this slide travels the cross slide. In the taper attachment there is only one sliding joint, and it is not necessary to run the carriage clear back to take up back lash. It is graduated in inches per foot on one end and in degrees on the other.

Fig. 4 shows also the follow rest which is fastened

in different sizes, also furnished with this machine. They are particularly useful for fine work, where the driving of an ordinary arbor would spoil a nicely finished hole and where the ordinary arbor would prevent easy machining on the face of the work. These arbors are carefully finished and are hardened and ground all over. The expanding part is a split cylindrical bushing with a taper hole, and is expanded by being forced on a conical plug.

A large and small face plate fitted to the spindle are regularly furnished with the lathe. Two sizes of blank chuck plates are furnished to order; these are 7 in. and  $3\frac{1}{2}$  in. in diameter, respectively, and are fitted to the spindle ready to be fitted to such chucks as the user may desire.

Another new feature of the machine is the micrometer stop, illustrated in Fig. 7, the object of which is to give the operator easy and accurate means for setting the tool and finishing duplicate pieces to a certain size. It does away with the necessity of making several trials for the setting and will give more accurate results. When a piece has to be faced to an exact thickness the tool is brought in contact with the work and the stop is clamped close against the carriage; the operator then retracts the micrometer screw the amount of the difference between the unfinished and required sizes and when the carriage is again brought in contact with the screw the right size is obtained without any uncertainty. The same procedure is followed in boring recesses, or turning certain lengths, &c. This stop can be used on either side of the carriage and is also useful in thread cutting, particularly long screws. When it is set in proper relation



to the lead screw, instead of running the carriage back by power, the half nut is thrown out and the carriage is run back quickly by the hand wheel until it strikes the stop; then the half nut being engaged with the screw will always present the tool correctly with the thread being cut, no matter what its pitch.

The lathe is built in 6, 8 and 10 ft. lengths and is furnished with or without a large oil pan and a rotary geared pump, driven from the countershaft on the cone head lathe and from the headstock on the geared head lathe, as previously explained. A swinging oil tank is attached to the bottom of the pan and the chips are screened from the lubricant to prevent their getting into the pump.

#### A New Line of E. C. & S. Controllers.

To meet the requirements of general crane service where the conditions are not severe enough to demand the use of a Dinkey ventilated controller, the Electric Controller & Supply Company, Cleveland, Ohio, has brought out a new line of controllers, known as type G. These are made in capacities of from 1 to 50 hp. and in four

The contact segments are of copper and are screwed to brass lugs to which all wiring connections are made. By this construction any of the contact segments can be removed and replaced without disturbing the wiring connections. The contact arm is of soft cast iron and carries the fingers and finger holders, which are insulated with heavy pressed vulcabeston bushings. The contact fingers are of very hard drop forged copper and may be removed and replaced without removing the contact arm. A powerful and effective blow-out is provided in all sizes of these controllers.

The frames of the types G-3 and G-5 controllers each consist of a main casting in one piece, provided with a cover by removing which easy access is afforded to all resistance connections. The case inclosing this frame is of perforated steel to allow ample ventilation. Figs. 1 and 2 illustrate this construction. The frame of the G-4 and G-6 controllers consists of a bottom casting which supports the resistance, and a top casting which supports the contact slate and arm, as in Figs. 3 and 4. The top and bottom castings are connected by four steel corner posts around which a casing of perforated steel is placed to protect and at the same time ventilate the re-

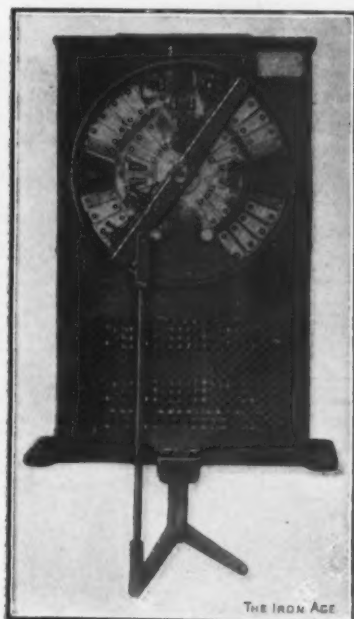


Fig. 1.—Type G-5 with Under Lever Attachment.

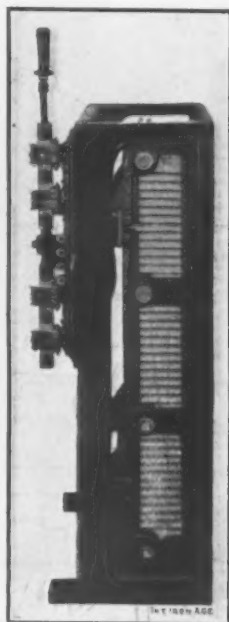


Fig. 2.—Type G-5, Side View, Cover Removed.

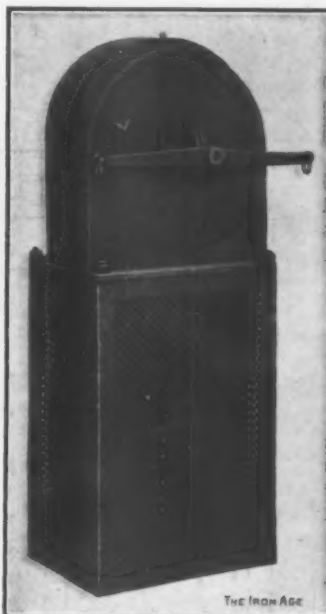


Fig. 3.—Type G-6 with Spring Return Lever.

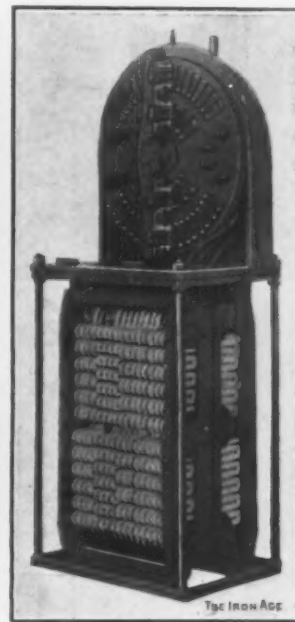


Fig. 4.—Type G-6 with Casings Removed

EXAMPLES OF THE NEW LINE OF CONTROLLERS BUILT BY THE ELECTRIC CONTROLLER & SUPPLY COMPANY, CLEVELAND, OHIO.

styles, the types G-3 and G-4 controllers being built with coil resistance and the types G-5 and G-6 with cast grid resistance. When it is desired to place controllers above or in the rear of the operator the controllers are furnished arranged for under lever operation, as in Fig. 1. They are also furnished with spring return for operating from the floor by pendant ropes or chains, as in Fig. 3. A number of crane users have decided that a 15 or 20-ton crane requiring a 25 or 30-hp. motor on the hoist and bridge motions may be operated to the best advantage from the floor by any of the men in the shop, thus saving the wages of a crane operator who would probably be idle half his time. It is a very simple matter to put cut outs at either end of the trolley travel and at either end of the runway to prevent accident. The type G controller has been introduced to meet this demand for a controller up to 50 hp. arranged for operating from the floor.

The type G controllers are self-contained, compact, and accessible. The resistance is placed in the frame, making it necessary to run only four wires between the controller and motor. Reversal is accomplished by a single lever, no separate reverse switch being required. All parts are made to jig and are interchangeable. The contact face is of heavy slate, free from metallic veins.

The top casting of the G-4 and G-6 controllers supports the contact slate, which is completely covered and protected by a sheet steel casing. This prevents the operator from coming in contact with any live parts of the controller, and also protects the working parts of the controller from dust and dirt. Operation is easily effected by a lever keyed to the arm shaft at the back of the top casting, which gives a short movement of about 10 in. in either direction for both starting and reversing.

The resistance of the G-5 controller, as shown in Fig. 2, is made up of cast grids in a single bank, which may easily be removed as a unit without disturbing the other parts or moving the controller. The resistance for the G-6 controller is made of two banks supported on bars attached to the frame, which may be removed in separate units without disturbing the other parts, as may be seen in Fig. 4. The resistance for the types G-3 and G-4 controllers are made up of type E coils wound on heavy asbestos tubes, stiffened by central brass tubes which serve to bring the rear terminals forward, facilitating the necessary connections.

These controllers are adaptable to service up to 500 volts. Six points of control are provided with the G-3 and G-5 controllers, and eight points of control with the G-4 and G-6 controllers.

### Improved Dust Catcher at Pulaski Furnace.

BY JOHN J. HOWARD, DUQUESNE, PA.

Flue dust is looked upon as a nuisance at nearly all blast furnace plants. Even at furnaces using hard lump ores the difficulty is present unless the coke used is of extra good quality. While we were not troubled with fine ore at Pulaski Furnace, Pulaski City, Va., using nearly all washed brown ores, the trouble manifested itself to a considerable extent, and was due in a marked degree to the soft Pocahontas coke.

The flue leading to the stoves is overhead and has three legs or cylindrical supports. These can be cleaned at any time without taking the blast off entirely, the job being usually done at cast time. As a result the stoves are easily kept clean and give no trouble except when they are allowed to get too hot. The flue leading to the boilers is underground and in this the dust accumulated, constricting the passage, so that about every five weeks the blast had to be taken off and the dust, mostly coke dust, removed. It is a 6-ft. flue, and as the

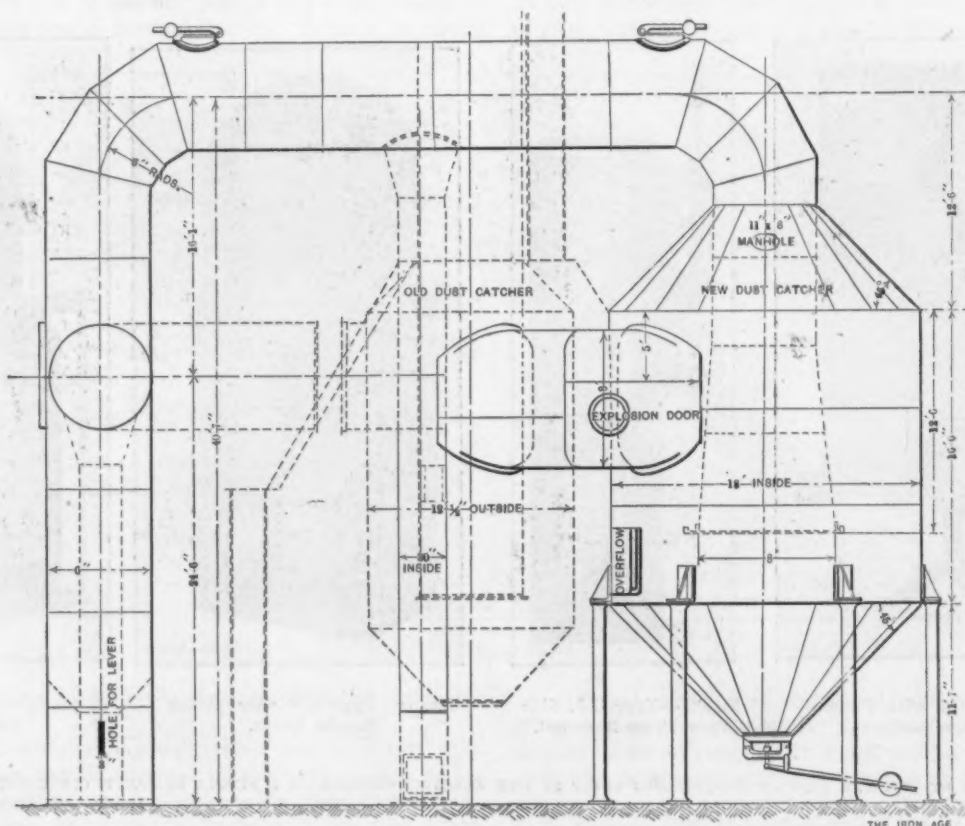
part had to be dispensed with. The theory held good in practice, and instead of stopping the furnace as formerly at the end of five weeks to clean the flue we continued for five months and even then the interruption was not compelled by the dust, as the flue was not over half full. Subsequently the furnace was run almost 10 months before the flue was cleaned.

The dust in the small dust catcher runs higher in iron, approaching 30 per cent., and the bulk of it would stay on a 10-mesh sieve. In the larger dust catcher the dust runs between 15 and 20 per cent. in iron and in the sieve test showed as follows:

	Per cent.
Over 40-mesh sieve.....	0.5
Over 60-mesh sieve.....	4.5
Over 80-mesh sieve.....	13.0
Over 100-mesh sieve.....	22.0
Through 100-mesh sieve.....	60.0
Total.....	100.0

Dust so fine it will pass a 100-mesh sieve will travel a long distance with the gas, and it was this that gave the trouble in filling up the flue to the boilers.

Superintendent Messler of the Eliza furnaces of the



A Second Dust Catcher Provided at Pulaski Furnace, Pulaski, Va., for the Dry Separation of Flue Dust from Furnace Gas.

dust was red hot a great deal of water cooling was required before a man could enter to remove it.

In 1904 the furnace was blown out for extensive repairs and a means devised to catch the bulk of the dust before it reached the flue. Jos. Hunter submitted a design, of which an elevation is shown in the accompanying illustration. It provided for an additional dust catcher, much larger than the old one. The gas on entering it would be given a whirling motion and would leave the chamber by the central upward passage. The idea was to cause the particles of dust to come against the walls of the dust catcher, and by losing their motion fall to the bottom. F. C. Roberts, of Philadelphia, had a design somewhat similar, but laid special stress on the length and shape of the bottom cone.

In erecting the new dust catcher it was arranged so that the bottom part of the body could be kept filled with water and the gas impinging on its surface would lose part of its dust, following the principle of several gas washers on the market. However, as the waste water and dust could not be run into our source of water supply on account of filling up the stream the water

Jones & Laughlin Steel Company, having seen the efficient manner in which this combination of dust catchers removed the flue dust from the gas, had a single dust catcher of enormous capacity similarly arranged at the No. 3 furnace of the Eliza group. These furnaces use a large per cent. of fine Mesaba ore and the test was more severe, but the separation of dust was successful and the four remaining furnaces are to be equipped in the same manner.

**Railroad Earnings in 1906.**—The gross earnings of 134 railroads in 1906, according to the *Financial Chronicle* were \$2,131,306,699, an increase of \$224,062,452, or 11.74 per cent. over 1905. This compilation represents companies operating 186,687 miles of road. Assuming that between 25,000 and 30,000 miles are not represented the *Chronicle* estimates a total increase of \$240,000,000, of which \$135,000,000 is for the first six months of the year and \$105,000,000 for the last six months. The figures of 134 railroads include the Canadian lines, but not the Mexican roads or the mining operations of the anthracite coal roads.



### A Tindel Double Rotary Slotting Machine.

A motor driven double rotary slotting machine intended to be used in slotting forged steel crank shafts, connecting rods and links, has just been built for the Union Pacific Railroad Company by the High Duty Saw & Tool Company, Eddystone, Pa., a front view of which is shown in Fig. 1 and a rear view in Fig. 2. The machine can also be used as a general cutting-off machine for cold sawing axles and miscellaneous straight stock, by removing one of the saw blades. Ordinarily two Tindel high

ing under heavy feeds and obviating frequent renewals of expensive worm wheels.

The housing of the machine is massive, and the saddle carrying the arbor is heavy. It has a large bearing surface on the bed and is held down to it with an underlock cast solid with the saddle. All wear on the saddle or bed is taken up with phosphor bronze tapered shoes. A removable table with screw adjustment for setting work to a line is a feature of the machine. In the illustrations are shown mounted on the table special V-stands and rest blocks, with clamps and bolts designed especially for set-

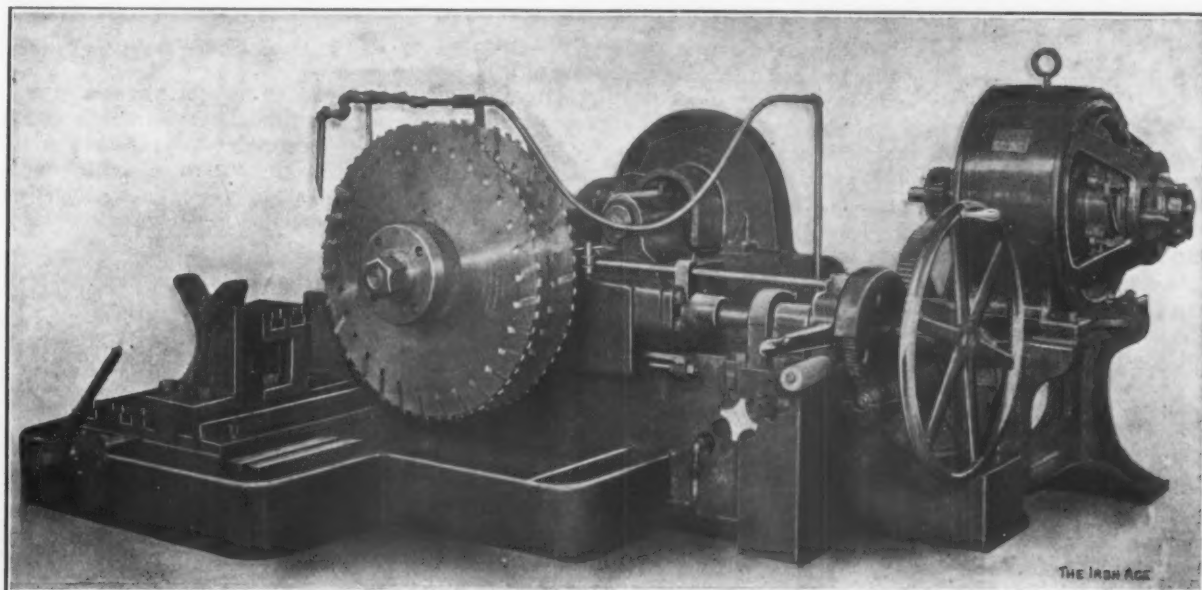


Fig. 1.—A Motor Driven Double Rotary Slotting Machine Built by the High Duty Saw & Tool Company, Eddystone, Pa.

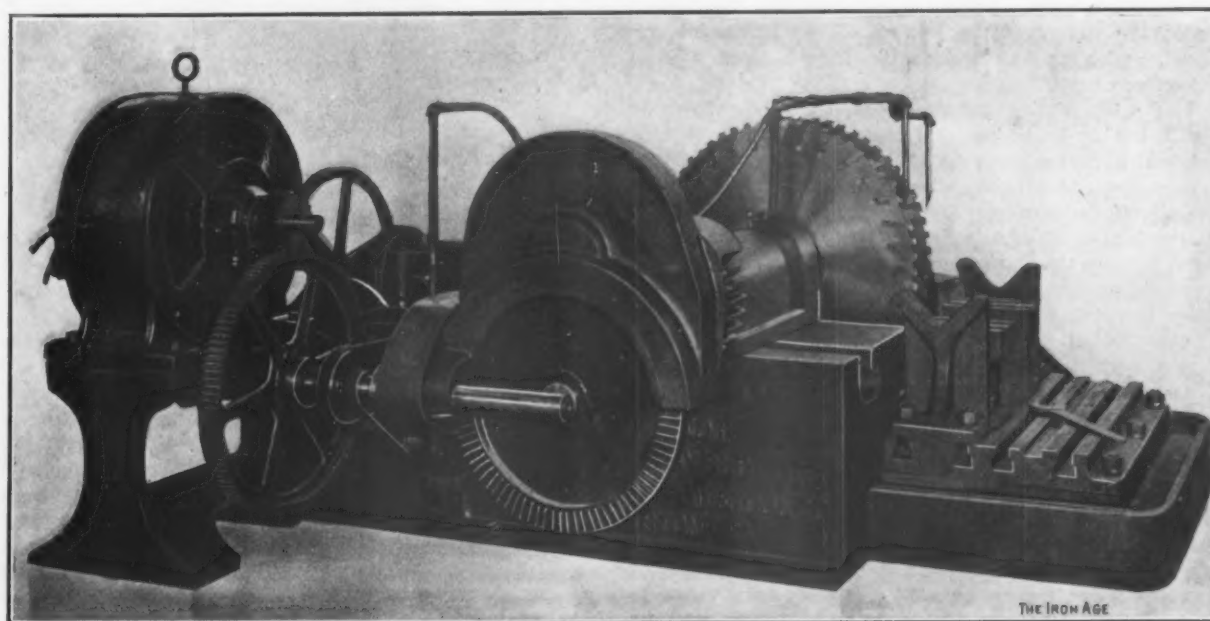


Fig. 2.—View of the Opposite Side of the Tindel Double Rotary Slotting Machine, Showing the Motor Drive.

duty inserted tooth milling saws are operated by this machine, each milling blade being 36 in. in diameter and having 60 inserted cutters of high speed steel.

The machine is electrically driven by a 15-hp. Westinghouse direct current 2 to 1 motor. The motor is connected to the driving shaft of the machine, through a pinion and spur gear, as shown in Fig. 2. Power feeds ranging from  $\frac{3}{8}$  to  $1\frac{1}{4}$  in. per minute are obtained with both saws feeding simultaneously. No worm gearing is used in the drive, it being the practice of the company to avoid it wherever possible. Accordingly the driving power is transmitted to the saw blade through straight spur and bevel gearing. This has the advantage of eliminating the excessive friction produced by worm gear-

ing and firmly holding crank shaft work while being slotted. These fixtures are removable, so as to leave the table underneath clear for bulky work, or the mounting of other special fixtures for holding a variety of work. A large reservoir for a supply of drilling, or other compound, and an automatic pump with flexible piping maintains a liberal stream of cooling and lubricating fluid on each milling blade while the machine is in operation. Troughs cast around the bed of the machine collect and return the lubricating fluid to the reservoir and pump.

The machine is capable of cutting double slots, spaced up to 10 in. apart, to a depth of 11 in. On steel up to 0.45 carbon, the machine, driven moderately, cuts slots of these dimensions in 15 min.

## Some Modifications in Blast Furnace Construction.\*

BY JULIAN KENNEDY, PITTSBURGH.

Within the last 20 years American blast furnaces have increased greatly in size and output. In the same time there has been a marked change in the raw materials used in them. Owing to the enormous tonnages made, it has become necessary to use in addition to what are known as the old range ores, which are coarse and lumpy, a large proportion of the Mesaba Range ores, which are comparatively fine and dusty in structure, and which have a tendency to interfere with the free passage of the blast through the furnace, and to cause the furnace to work irregularly and to hang and slip. The hanging and slipping cause a variable pressure in the bottom of the furnace and also cause great disarrangement of the stock descending in the shaft of the furnace. When a furnace is working normally, the blast pressure drops gradually from the level of the tuyeres up to the zone of fusion, or, say, 6 ft. above them, where there is a rapid drop for a short distance and then a gradual drop from this point to the top of the furnace. The blast pressure in a furnace working normally is shown in a general way in Fig. 1.

### When a Furnace Is Hanging,

especially if it stops moving for a considerable time, the stock burns out below, leaving a cavity, and any one who has examined a furnace which is hanging, by taking the blast off and looking through the clinder notch or the tuyere with the aid of a mirror, can see this cavity very readily. In the case of a furnace hanging stubbornly, the cavity will often be formed about as shown in Fig. 1, the interior of the arch looking quite smooth, due to fusion going on at this point. After the cavity reaches a certain size, a portion of the stock is liable to drop, breaking the arch and causing the stock above to come down with a rush. At the same time the compressed air in the cavity at the bottom of the furnace is released, and goes up through the falling stock with a tremendous rush.

If the top of the furnace is constructed as shown in Fig. 2, having its hopper and cone set on the brickwork and held almost entirely by its own weight, this rush of gases is liable to lift the entire top up or perhaps throw it entirely off the furnace. It was formerly the practice to set the hopper in a base ring resting on the brick lining alone, but, as the lining sometimes disintegrated and allowed the hopper to drop into the furnace, brackets were added to prevent this, as shown in Fig. 2, and later the hopper was bolted down to these brackets or to a frame of beams which took their place.

To prevent the upheaval of this bell and hopper apparatus, so-called explosion doors were placed on the downcomers, and in some cases extra openings were carried out through the casings and additional relief doors were fitted to these openings. In the case of heavy slips, where heavy pressures and large volumes of blast were used, the upward rush of the blast picks up the ore and coke and carries them up with it and hurls them out of the relief doors in great quantities, it being not unusual to see from 30 to 50 tons of ore, coke and limestone thrown out of a furnace in less than as many seconds at the same time that a vast cloud of gases and ore dust envelops the top of the furnace, and sometimes these gases light as they come out, making a tremendous flame.

### Decided to Do Away with Explosion Doors.

About seven years ago it occurred to me that, if possible, some method ought to be devised to prevent the terrible loss of life on top of furnaces that was going on, due to men being suffocated or burned on the tops of furnaces, as well as the loss and damage caused by the throwing out of material at the relief doors. After studying the matter for some time I concluded that there was no good reason why the usual explosion doors should not be omitted. It seemed to me that what was usually spoken of as an explosion following a slip was not an

explosion at all, but that the material thrown out was carried up by the rush of the blast in just the same manner that dust or grain is carried in a pneumatic conveyor. The fact that bells and hoppers were thrown off furnaces by slips appeared to point to very high pressures until I had figured the amount of pressure required to throw up these hoppers, and somewhat to my surprise I was not able to find a furnace in the United States whose top would not be lifted by a pressure of  $2\frac{1}{2}$  lb. per square inch.

After giving a good deal of thought to the matter, I formed the opinion that the ultimate pressure which could be produced in the top of a furnace following a slip would be the pressure in the blast main; or, in other words, that the pressure in this case comes from the blast engines, and the stream cannot rise higher than its source.

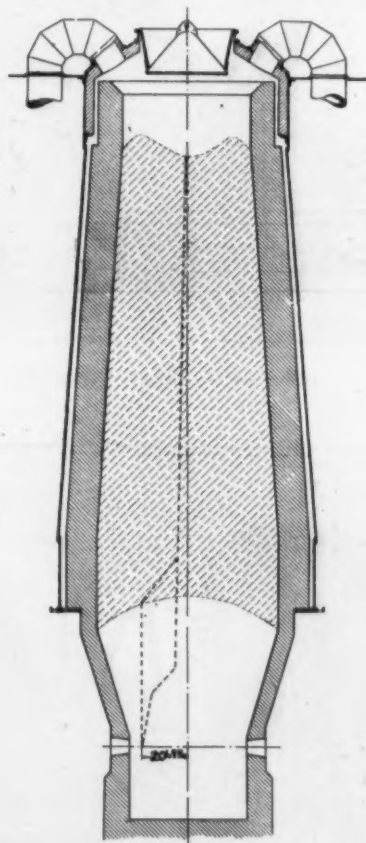


Fig. 1.—The Blast Pressure in a Furnace Working Normally.

It also seemed to me that, if the furnace casing were made strong enough to resist this pressure, it would be entirely safe to reduce the size of the outlets to such an extent as to offer a material resistance to the flow of the gases from the furnace in the event of a sudden and heavy rush of blast through the furnace, and that such a choking of the gases at these outlets would greatly diminish the rapidity of flow for the moment and thus reduce the tendency to carry solid materials out of the furnace.

The first furnace built carrying out these ideas was at the Iroquois Iron Company's Works, Chicago. It aroused a great deal of interest, and the great majority of furnacemen who saw the plans of the furnace predicted that the top would blow off the furnace in a short time after starting. Others said either the top would blow off or the bosh would be blown out. Neither of these predictions has come true. The furnace stood the heaviest sort of slips, and a slip that on the ordinary furnace would have thrown out 20 tons or more of stock would not throw 300 lb. of lumps into the dust catcher. The fact that the rush of gases is controlled to a certain extent also causes less disarrangement of the stock in the furnace, so that with a slip of a given magnitude there

\* President's annual address, Engineers' Society of Western Pennsylvania, January 15, 1907.



is less derangement of the working of the furnace and less tendency to change the grade of the iron made.

#### The Extended Use of This Construction.

There are now in operation 24 furnaces of this general construction, shown in Fig. 3. Wherever possible I have installed them without relief doors on gas mains, though in some cases, owing to insistence of managers, who were "almost persuaded" that the general scheme was all right, I have had to put relief doors on dust catchers or on gas mains. In some cases no relief is given except at stove and boiler burners and at the bleeder, and in some cases the bleeder has a positive valve, so that the only openings for the passage of the gases are those of the burners at boilers and stoves.

These furnaces have demonstrated, beyond a shadow

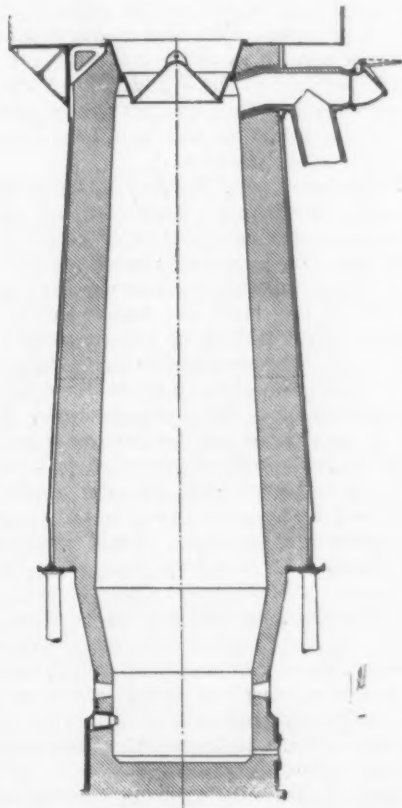


Fig. 2.—Section of a Furnace Showing the Top as Usually Constructed.

of a doubt, that it is absolutely safe to close altogether the top of the blast furnace, and that the letting loose of great volumes of dust and lumps of stock at this point is entirely unnecessary. It has been said that even if the dust is all brought down the downcomers it will pass through the stoves and boilers, and thus be scattered over the surrounding country. Some of it of course will, if no arrangements are made to stop it, but a large proportion of it can be caught in very simple dust catchers, and since gas engines have been installed at furnaces there have also been started gas washers so perfect that they will take gas from a furnace running on a mixture consisting largely of Mesaba ore and cleanse it till it has less dust in it than the ordinary atmosphere. So that, given a device that brings all the gases down to the cleaning apparatus, it is entirely feasible to do away with the dust absolutely.

As far as I am aware, not a single man has ever been burned on the top of any of the above mentioned 24-furnaces, or burned or injured by material thrown from their tops; nor have any of them bursted at any other place, or shown any indication that the strains on the bottom of the furnace have been increased by closing the top. In the light of what has been demonstrated, there surely can be no excuse in the future for burning men on top of furnaces, or burning or otherwise injuring them with materials thrown out of the tops of furnaces because of slips, and the amount of dust sent out from a furnace will depend entirely on how perfectly the management chooses to cleanse the gas by means of dust

catchers and washers, which have at the present time been developed to a degree of perfection which will enable the top of a furnace draft stack to be cleaner, as far as dust particles are concerned, than the cleanest spot in Pittsburgh is at present.

#### Discussion.

J. O. HANDY: I would like to ask if fire brick in the upper part of the furnace where they are acted on by the gases are also sometimes disintegrated or rotted, as well as the iron and steel?

MR. KENNEDY: Not if the brick is free from iron and is of a good quality. Brick that has too much iron in it will sometimes disintegrate. There have been cases where brick in the upper part of the furnace have disintegrated, but with good fire brick there is not much trouble that way.

A. E. ANDERSON: Has the gas engine in connection with blast furnaces been developed enough to say that it will be a settled practice in the future?

MR. KENNEDY: I think that it undoubtedly will. It is coming very rapidly, and one of its good features is that it will cause people to clean their gas.

H. D. JAMES: I would like to ask if there are any furnaces in the Pittsburgh District equipped with this construction?

MR. KENNEDY: Yes, the Isabella, the Clairton and the Donora furnaces.

E. K. MORSE: I would like to ask him to explain a little more of the modern furnace, and especially how much of the finer material and the lighter coke will go down the downcomer, if any, and what the action of that is when the pressure does not reach the top. We know that the ordinary furnace blows out great quantities of fine dust to a distance of a good many hundred feet. I would like a little more explanation of the action of the top of the furnace.

#### THE ACTION OF THE FURNACE TOP.

MR. KENNEDY: The action of a furnace equipped with relief doors at the top is that, while throwing out a large amount of material through the doors, it will also throw a considerably larger amount of coarse material into the dust catcher than will the closed top furnace, which cannot throw any material out at the top; that is, a furnace of the open top kind which throws two or three car loads of material through the relief doors will also throw much more material into the dust catcher than the closed top furnace will, with the same sized slip. Of course both tops will throw considerable fine dust over into the dust catcher, but the closed top throws a good deal less coarse material, and I think less fine material, as well. In any event, whatever is thrown out is thrown into the dust catcher, and does not come down on anyone's head, so that the men around these furnaces or working on top of them need pay no attention as to whether they are hanging or slipping or not. Whereas, with the old kind of furnace the man who goes on top when the furnace is hanging badly takes the chance of being burned to death whenever he does it.

MR. MORSE: But closing the top of the furnace, or throttling it, holds the pressure down until there is time to equalize it and as a matter of fact less dust is moved entirely.

MR. KENNEDY: Very much less dust, for the same reason that the waiter who pulls the cork entirely out of the bottle loses half the ginger ale, while the fellow who pulls it gradually does not lose a particle. It is like a triple expansion engine, which, when you get a high pressure of steam in the cylinder and receivers, you cannot stop instantly by throttling it at the usual point, but the steam in the receivers will go on through, and the engine will race unless you throttle it further along. When you have 20 ft. of the bottom of the furnace filled with compressed air, and that breaks up suddenly through the stock, there is no way to check it at the bottom, but you can throttle it automatically at the top if you make the exit as small as will allow the gas to pass through it during ordinary working. In this case, when there is an extraordinary rush of gas, the resistance of the small opening automatically throttles and holds it back, and for that reason it does not gather up and bring it near



as much material as when a large free opening is left for it. Slips which are of such extent when determined by measurement, as would in an ordinary open type furnace throw out 20, 30 or 40 tons of material, will not throw a tithe of that amount into the dust catcher in the case of the tight top furnace.

A MEMBER: Would that system prevent the terrific distribution of dust?

MR. KENNEDY: It would prevent all egress of dust through the top of the furnace. Of course dust comes down into the dust catcher, and if the gas is not cleaned properly it can pass through the boilers and stoves and

MR. ANDERSON: Is the electric furnace making any progress such as will make it a competitor of the blast furnace?

MR. KENNEDY: Not yet for the production of ordinary grades of iron. The electric furnace has a field in the production of high grade special steel, such as tool steel, and steel for automobiles, but it cannot as yet compete with coke for the production of ordinary qualities of steel in large quantities, except under very extraordinary conditions as to water power. But, even at the price charged at Niagara now, it cannot compete with the blast furnace in making ordinary material.

#### THE UTILIZATION OF FURNACE GAS.

H. C. BABBITT: I would like to ask if you do not think the future economy of the blast furnace will depend in great part on the utilization of the clean furnace gas. Calculations I have seen state that to-day about 20 to 25 hp. per hour is thrown away in gases for every ton of pig iron made per day. I think it was Sir William Ramsey who was so radical that he stated that in the future the blast furnace would be run as a gas producer and pig iron would be a by-product.

JOHN A. BRASHEAR: Sir William Ramsey uses pretty large statements sometimes. That man has done great work in the world, but he occasionally gets wild.

MR. KENNEDY: The gas engine using furnace gas produces about three times as much power as can be produced by putting the same gas under boilers, so that there is now a very distinct movement toward gas engines. The Edgar Thomson people are putting in some and the new plant of the United States Steel Corporation at Gary will have almost entirely gas engines. They will have a few steam engines for the purpose of starting up, but the bulk of power will be furnished by gas engines, and in addition to blowing the furnaces power will be furnished from the furnaces to run the mills, which will be driven by electricity generated by gas engines; so that the only fuel they will use in the steel mills will be for heating the steel. The statement that pig iron will be a by-product is perhaps not so wild as it would at first seem.

MR. BABBITT: Do you think that is a fair figure, 20 to 25 hp. per hour for every ton of pig iron made per day given off in combustible gases?

MR. KENNEDY: Yes, I judge that the figures named are approximately correct.

MR. BRASHEAR: Do blast furnaces generate power in excess of what they need for their own immediate uses?

MR. KENNEDY: Yes, even with steam there is quite an excess of power. At the Duquesne Works you will see a line of pipe laid from the blast furnaces to the mill, and they get probably 2500 hp. If they had gas engines they would get many times that amount.

L. A. STARRETT: Speaking of the present boiler equipment of the Gary plant, its equipment will amount to about 6400 hp. for the entire plant.

#### DOES A SLIP EXTEND TO THE TOP OF THE FURNACE?

GERALD FLANAGAN: When the stock in the furnace has been hanging a long time and is arched over as he describes, I would like to ask if, when the slip occurs, does that slip extend to the top of the furnace or does it arch over at some intermediate point again?

MR. KENNEDY: I think, as a general rule, the whole charge comes down. It starts to fall from the bottom, and it may be several seconds before it all gets down. I knew a man once who had the theory that if he could get an enormous opening in his furnace he could do away with all danger from slips. So he cut out not only his downcomers but about six other openings, four or five feet in diameter, as many as he could all the way round and he got the aggregate area of the openings equal to the area of the cross section of the furnace at the bosh, and he thought he had a model furnace. These openings had doors to hang shut, which would open when there was a slip. They had a slip, and before they could stop the blowing engines they had emptied that furnace to within 12 ft. of the tuyeres. It had simply been poured out over the casting house.

MR. FLANAGAN: That seems to bear out what you said

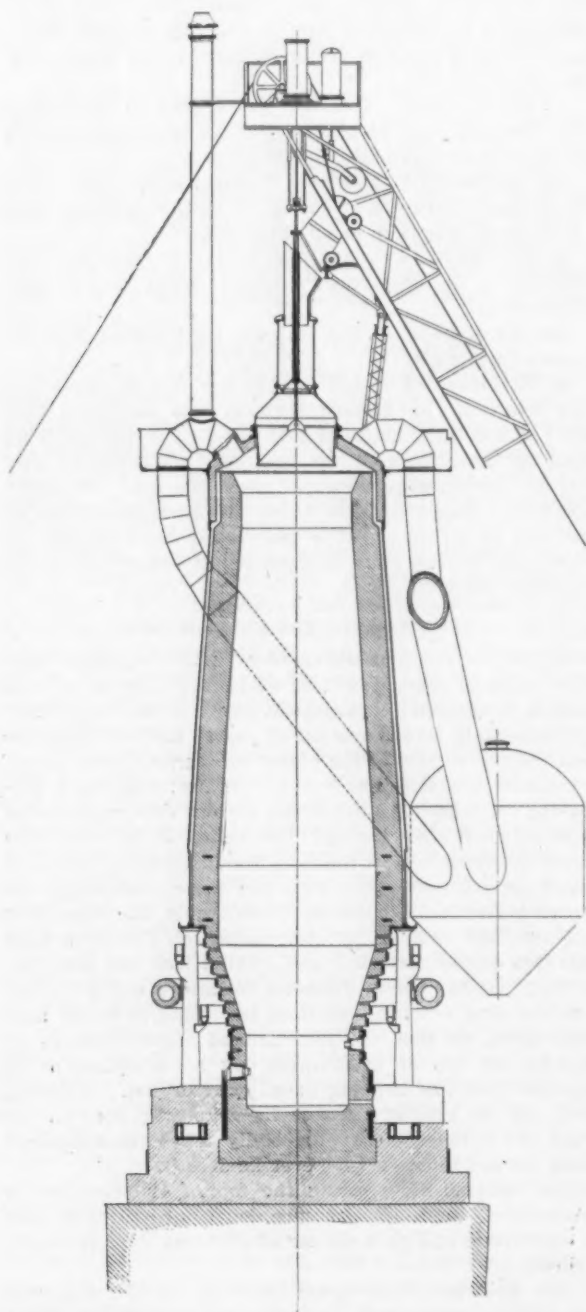


Fig. 3.—The Kennedy Furnace Top with No Explosion Doors.

get out at the top of the smoke stacks, but all dust that comes out around the top of the furnace is absolutely done away with. You could go by furnaces of this kind on a train and in many cases could not tell whether they were running or not by looking at the furnace, and the only way to judge would be to look at the top of the smoke stacks and see if there was any smoke coming out there.

MR. MORSE: Where are those furnaces you mentioned in Buffalo?

MR. KENNEDY: At the Buffalo & Susquehanna Iron Company's works. There is also the same at Punxsutawney, Du Bois, Cleveland, Toledo and two at Chicago.

about the material being thrown out by the blast pressure and not by any kind of explosion.

MR. KENNEDY: I have never seen in a slip anything that to my mind seemed to be explosive. There have been explosions in furnaces when blown out, and when nearly empty a lot of air possibly got through the thin incandescent bed of fuel without being burned and mixed with the gases above, and then the whole business exploded. That was an explosion, and the bell went up 50 or 60 ft., and the jacket was rent open and all that sort of thing. There is no doubt of an explosion when it comes, and we will always know it.

A. STUCKI: It has been proved that furnace gas can successfully be used in gas engines, since we know how to wash it; also that gas directly used is far more economical than steam. But what I would like to know is the amount of heat units contained in the furnace gas, with the point in view, whether it could not be used for commercial purposes.

#### LIMITATIONS OF FURNACE GAS.

MR. KENNEDY: I imagine that blast furnace gas is rather too weak to be used in this way. It has not much illuminating power, and has not heating power enough to use, for example, in open hearth furnaces, but it is an ideal gas for gas engines, simply for the reason that it is not so strong as some of the other gases. It would not be suitable for distribution in mains through cities, and the best possible way to use it is in gas engines at the furnace.

MR. BABBITT: I could tell Mr. Stucki that the average blast furnace gas will run about  $\frac{1}{2}$  per cent. hydrogen and 27 to 28 per cent. of carbon monoxide. It has a value of about 85 to 90 heat units, while natural gas, which is practically all CH<sub>4</sub>, will run over 1000.

MR. KENNEDY: I might also say here that in the Gary plant it is my understanding that the gas will practically all, except what is used for the blowing engines, be turned into electric power, and the rolling mills will be run by electric motors and not by direct connected gas engines.

K. A. MUELLENHOFF: I might call Mr. Stucki's attention to the paper read before this society in 1903, where all these figures were given in detail.\* I would like to ask if, in this throttling of the gases, there is diminished to any appreciable degree this turning up and down of the whole charge, so that the working of the furnace is kept almost uniform, even if a slip occurs.

MR. KENNEDY: I think this action is materially diminished; I would not say that it is done away with. There must be quite a disarrangement in any case; but with the semicontrol which this gives when a mass of this kind breaks loose and comes rumbling down, my observation has led me to believe that there is a material lessening of the disarrangement in the furnace and that there is somewhat less danger of making white iron the next cast.

A. E. ANDERSON: In view of the fact of the Connellsville coke having a rather short existence, will not the future require a modification in the height of the furnaces to meet the weakness of coke made from inferior coal as compared with Connellsville coke?

MR. KENNEDY: I think that possibly if a furnace was going to use Pocahontas coke it would be wise to make the furnace 10 or 15 ft. shorter, but it is probable that when the Connellsville coke gives out there will be a large increase in by-product coke which is even stronger than Connellsville coke, so far as crushing strength goes.

MR. MUELLENHOFF: What is the length of time of a charge going through the whole furnace, from the time it is charged until it comes out as iron and slag?

MR. KENNEDY: I could not tell very well without figuring up the amount that is in the furnace at a time. I suppose it runs 12 to 15 hours, maybe more and maybe less.

F. Z. SCHELLENBERG: It is surprising to hear that it takes 13 tons of wind to make a ton of iron. That startled me when I first heard it. Is it true?

MR. KENNEDY: It takes about 6 lb. of air to burn 1 lb. of coke, and if a furnace is making iron with a

pound of coke to a pound of iron, about six tons of air would be required per ton of product.

A MEMBER: Is not the hanging sometimes caused by the material sticking to the sides of the furnace without arching?

MR. KENNEDY: Sometimes material will stick to the sides of the furnace, but that is not very usual. As a general rule, an arch in a furnace hangs a while and then breaks and comes down, and it is not usual to get what is called a scaffold—a lump hanging to the sides of the furnace, though this sometimes happens.

#### Ontario's Malleable Interests and the Tariff.

TORONTO, February 23, 1907.—In its latest form the item of the Canadian tariff providing for a drawback of duty on imported materials utilized in the home manufacture of harvesters and mowers meets with as strong opposition as in its original form. In the resolutions presented November 30, it will be remembered, rolled iron, imported rolled steel and pig iron were made subject to a drawback of 95 per cent. when manufactured into harvesters and mowers or parts thereof. The manufacturers of rolled iron and steel were able to persuade the Government that these two classes of material should not be so treated. Hence, the item was changed so as to make the drawback in favor of harvesting machinery apply to malleable iron and pig iron alone, and on these it was raised to 99 per cent. It is understood that this was not satisfactory to the agricultural machinery men. It has been very strongly impressed on the Government this week that it is not satisfactory to the Canadian producers of malleable iron. A protest signed by the malleable iron manufacturers in Ontario, of which the following is a part, has been sent to the Minister of Finance:

The undersigned beg to state that the following are the reasons why such a change would work injuriously and partly destroy the malleable iron industry in Canada: (a) Under the proposed change it would be impossible to compete successfully with the United States. Every manufacturer of malleable iron castings in Canada, with probably one exception, produces at present more or less castings entering into the building of harvesting machinery. (b) Several of the undersigned have built and equipped large additions to their respective plants, not anticipating this proposed tariff change. This would not only mean a most serious financial loss, but would stop all further expansion.

One firm here represented canceled an order for 80 workmen's cottages as a result of the change above referred to.

In view of the foregoing we would respectfully ask the tariff commission and Government to impose a duty of at least 20 per cent. on malleable iron castings for harvesting machinery and sprocket and link chain belting, coming in from the United States.

Any lower rate of duty than this would practically mean the ruin of the malleable iron industry in Canada.

The little town of Oshawa, not far from Toronto, would have more to lose than any other place by any change that would injuriously affect the malleable iron industry, for without the works of the Ontario Malleable Iron Company a large part of the town's population would be unable to find employment there. It is estimated that the company pays out \$8000 per week in wages.

C. A. C. J.

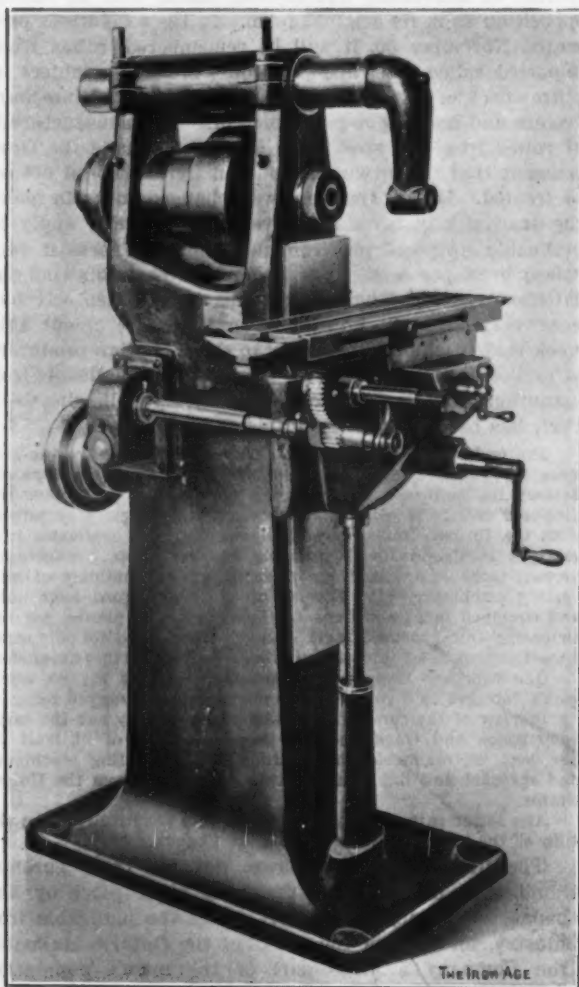
The Roessler & Hasslacher Chemical Company, 100 William street, New York, selling agent in the United States for the Comptoir International De Vente du Ferro Silicium, Paris, France, is distributing two ferrosilicon circulars. One of them, which bears the signatures of various manufacturers, explains that present high prices of ferrosilicon are due to the dearth of raw materials, evidently to allay the impression that prices have been arbitrarily advanced. The other treats of the uses of high grade ferrosilicon running from 50 to 90 per cent., stating that the two principal fields of application are in foundries and steel works. In the foundry the addition of high grade ferrosilicon in the ladle not only facilitates the proper machining of the castings, but considerably increases the strength and ductility of the material. In steel works its influence on the quality of the steel is manifested by the greater strength and elasticity of the product so treated. It also absorbs gases and thereby renders steel more dense. It further has a high calorific effect during oxidation.

\* Gow and Flint, Vol. XIX., 1903, p. 195f.



### The Wainwright & Kelley Light Milling Machine.

For general light milling work, such as the machining of small brass or other metal parts for electrical apparatus, sewing machines, &c., Wainwright & Kelley, Trenton, N. J., have designed a new milling machine, known as No. 1, which is herewith illustrated. It is particularly intended for the rapid handling of small work and to that end has been made as convenient to manipulate as possible. A special feature is the quick movement for setting the work table by hand, longitudinally as well as vertically. This is accomplished by putting a crank handle on a moderately large gear, which normally serves as an intermediate in transmitting the automatic feed to the rack under the table. A little more than one and one-half turns of the crank will move the table its entire



The No. 1 Milling Machine Built by Wainwright & Kelley, Trenton, N. J.

length. A patented internal clutch, operated by a trigger from a knob at the front, is used to disengage and engage the automatic feed before and after using the hand adjustment. This clutch is so designed that the table feed will trip at the same point every time after the trip dog has been set.

The table is 28 x 6½ in. over all, has a working surface of 25 x 6¼ in., an automatic longitudinal feed of 18 in., a hand adjustment parallel with the spindle of 4½ and a vertical adjustment of the knee of 13 in. These dimensions practically indicate the working capacity for a single setting of the work on the table. The swing under the arm is 10 in., or enough to admit a cutter of the largest diameter that would ever be required on work of the character for which the machine is built.

The three steps of the cone pulley give three changes of speed with an ordinary single speed countershaft or multiples of that number with variable speed countershafts. If an electric motor is used to drive directly, a

variable speed type is to be preferred to avoid the necessity of belt shifting. The machine regularly provides three feeds for each of the speeds of the spindle, corresponding to 0.004, 0.008 and 0.012 in. per revolution of the spindle. The machine is regularly equipped with a vise with a capacity of 3½ x 1½ x 2 in. and an ordinary tight-and-loose pulley countershaft intended to run at 125 rev. per min. The net weight of the machine is 1100 lb.

The construction of the No. 1 milling machine, with respect to materials and design, has received special consideration in the endeavor to make it light but amply strong for its work. The spindle is of hammered crucible steel of 40-point carbon and runs in self-centering adjustable bronze boxes. The arm is 3 in. in diameter, is designed for stiffness and is provided with means for clamping rigidly in position. It has an arbor bushing of hard bronze, adjustable for wear. The table has one T slot 9-16 in. wide and is made of ample section to prevent drawing out of shape in clamping work. It has a long bearing in the saddle and is provided with oil pockets at both ends and with oil channels at both edges. The knee is of box type, heavily reinforced to withstand side strains, and has an extra long bearing on the column face. The column is heavy and designed to absorb all vibration. The feed is driven by inclosed worm gearing and belt from the spindle. The latter runs at very high speed and the gearing ratio is 361 to 1, giving a very powerful feed. The dials for the cross and vertical movements of the table are adjustable and are graduated to read to thousandths of an inch.

With the machine is included the following equipment: A draw-in bar and arbor, plain vise, countershaft and all necessary wrenches and spanners.

### The Ohio Rail Company.

A new organization of the above name, having a paid in capital of \$50,000, has applied for an Ohio charter and will erect a plant at Newark, Ohio, for the manufacture of rails in 12 to 45 lb. sections by the rerolling process. The initial capacity will be about 3000 tons a month, which is expected to be steadily increased. The company will erect a plant to consist of three buildings of steel, brick and stone construction, located on 10 acres of ground and having direct connection with the Baltimore & Ohio and Pennsylvania railroads. The main building will be 85 x 300 ft., and the equipment will consist of 1000-hp. boilers and engine, an 18-in. Garrison rail mill, heating furnaces and other necessary machinery. The equipment is now being installed, and the company expects to make record time in the completion of its plant, hoping to be able to reroll rails in May.

L. B. Foster, Pittsburgh, is president of the company; Lambert B. Richards, Newark, Ohio, vice-president; H. N. Bernheimer, Pittsburgh, secretary and treasurer, and T. J. Costello, Newark, Ohio, general manager. Mr. Costello will also act as superintendent, having had 20 years' practical experience in the rolling mill business, 10 of which were devoted to the manufacture of rails. Mr. Foster is at the head of the L. B. Foster Company, dealer in rails, with offices in the Park Building, Pittsburgh, and is familiar with the demands of rail buyers. After April 1, the Ohio Rail Company will have offices in rooms 629-630 Park Building, Pittsburgh, which will also be the offices of the L. B. Foster Company, now located at 619 Park Building. The iron, steel and rail business of the L. B. Foster Company will be continued as heretofore under that name, but for the sake of convenience its offices will be merged with those of the Ohio Rail Company, and the Foster Company will act as exclusive selling agent for the Rail Company.

**Large Contracts for McClure Stoves.**—G. W. McClure, Son & Co., Bessemer Building, Pittsburgh, has received a second contract for 16 McClure patent three-pass fire brick hot blast stoves, 22 ft. in diameter and 95 ft. high, for the new blast furnaces being built by the Indiana Steel Company at Gary, Ind. This second contract makes a total of 32 McClure stoves that will be built in connection with the eight blast furnaces to be erected at Gary.



### The Nicholson Roller Tube Expander.

A tool unique in its class is the self-feeding and self-releasing roller tube expander recently put on the market by W. H. Nicholson & Co., Wilkes-Barre, Pa. The tool can be operated by an air drill, or by hand, as illustrated in Fig. 1, where it is shown being used to expand the tubes into the tube sheet of a locomotive boiler. It is claimed that it will roll a tube tighter and quicker than any other expander, that it is impossible to over roll or ruin a tube and that the power required is very much less, one man being able to expand a 4-in. tube by hand.



Fig. 1.—The Nicholson Self-Feeding and Self-Releasing Roller Tube Expander as Operated by Hand.

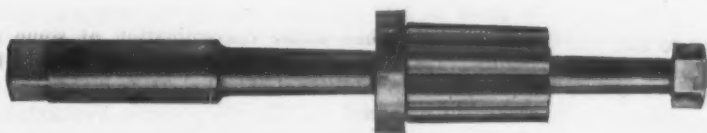


Fig. 2.—An Assembled View of the Nicholson Roller Tube Expander.

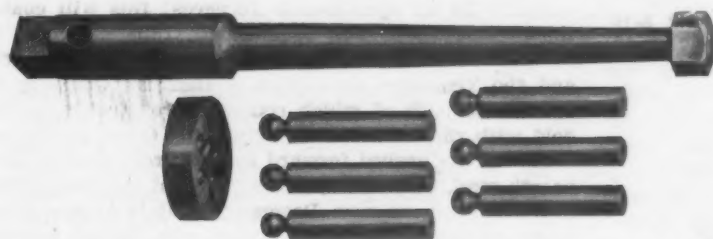


Fig. 3.—The Parts of the Tube Expander Separated.

The parts are shown assembled in Fig. 2 and separated in Fig. 3. These will be seen to include a tapered arbor, six rollers, a retaining collar for the rollers and a nut. All of the parts are tool steel and hardened throughout. The shank of the arbor has two holes at right angles, for inserting the bar when using the expander by hand, and has a square end for driving with an air machine. The nut on the small end of the arbor is to prevent the rollers from falling off the arbor. The heads of the rollers are spherical in shape and engage in spherical sockets in the retaining collar, being inserted through the bore at the center when the collar is removed from the arbor. There are thus formed ball and socket

joints, which allow the rollers to work freely at an angle in either direction. The taper of the arbor is long enough to allow sufficient expansion variation for all sizes or thicknesses of tubes ordinarily used.

The tool is operated as follows: The rollers are placed in the tube, the arbor is revolved, causing the rollers to be thrown at an angle with the arbor, which makes the tool self-feeding. After the tube has been rolled sufficiently, by giving the arbor one or two revolutions in the opposite direction from that used in the rolling, the rollers are thrown parallel with the arbor and the expander releases itself. The self-feeding feature avoids

any necessity of driving or forcing the tool and the use of six rollers gives the expander twice the bearing in the tube that is ordinarily obtained with other expanders.

W. H. Nicholson & Co. are also manufacturers of the Nicholson expanding lathe mandrels, the Nicholson compression shaft couplings and other machinery specialties.

### The Winona Technical Institute.

The Winona Technical Institute, Indianapolis, Ind., has issued a statement of what it has accomplished during its short existence and of what it hopes to do in the near future. It was opened in September, 1904. The purchase of the buildings and grounds of the Indianapolis Arsenal gave the institute a prompt start, as only a limited amount of remodeling or new equipment was necessary. One new building, a foundry, was erected. The artillery building, which burned about a year ago, has been rebuilt and may be used as a machinery hall under the Metal Trades Association.

The problem was to organize a school so as to get the support, if possible, of both capital and labor. The school favors neither union nor non-union sentiment or instruction. It has secured the co-operation of several national organizations of employers and of one national union. These realize that the old style of apprenticeship is now almost impossible and that skilled labor in the future must be the product of trade schools. The institute finds sentiment growing among union labor that it is impossible to teach in the modern factory or shop even the few apprentices that the unions have been willing to admit.

The following associations are now officially connected with the institute: National Association of Employing Lithographers, United Typothetae of America, National Founders' Association and Manufacturers' Credit Association. Negotiations are pending with the Metal Trades Association, National Cutters' Association, National Brickmakers' Association and several others. The institute has enrolled 483 students; present enrollment, 265. This compares, for example, with the Williamson School, near Philadelphia, with 16 years' history and nearly \$2,000,000 endowment, with a present enrollment of 225. It is said that the trades schools of America and Europe enroll one-fifth day pupils and four-fifths night pupils. The Winona Institute has not yet opened night schools, except in pharmacy. Among the new departments soon to be established will be three—civil, electrical and mechanical engineering. The gross expenses for 1907 are estimated at \$57,000.

## Open Hearth Steel Rails.\*

### Reasons for Their Displacement of the Bessemer Product.

BY BENJAMIN TALBOT, MIDDLESBROUGH, ENGLAND.

The fact that the Bessemer process has already passed the zenith of its growth is one which has now become well recognized by metallurgists generally. The writer proposes to examine the causes which are slowly but inevitably bringing about the decadence and it may be the practical disappearance of this mode of steel manufacture. Already in Great Britain the open hearth processes of steel production, as regards the yearly make, have far outstripped the Bessemer process. Taking the British Iron Trade Association's published returns for the first half of the year just ended it appears that while the make of open hearth steel for the six months amounted to 2,196,853 tons, the make of Bessemer steel for the same period only reached 919,620 tons. The open hearth figures show an increase of 216,758 tons on the output of the first half of the year 1905, while the Bessemer tonnage shows a decrease of 100,267 tons. Other statistics from foreign countries might be quoted as showing a similar state of affairs.

In the writer's opinion three main causes are bringing about this supersession of this wonderful process, which at one time was justly considered to be the most perfect solution possible of the problem of converting crude molten pig iron into steel: 1. The evergrowing scarcity of iron ores suitable either for the acid or basic Bessemer processes; 2, the superiority of the product obtained by the open hearth processes of manufacture; 3, the cheapening of the production of the steel ingot by modern open hearth methods of manufacture.

#### Bessemer Ores Scarcer.

As regards the increasing scarcity of iron ores suitable for use in the acid Bessemer process, this is perhaps the most cogent of the three causes named. As is well known in Great Britain the hitherto discovered deposits of hematite ore are not large, and their occurrence is practically confined to the West Coast. For years our main supply has been Spanish red ore from Bilbao; this is yearly becoming both scarcer and poorer in quality. In England hematite pig iron, for use in the acid Bessemer process, usually contains not more than 0.04 to 0.07 per cent. phosphorus, and any ore giving a pig iron with any appreciable amount of phosphorus over this is in this country and on the Continent generally considered unsuitable for making hematite pig for the acid Bessemer process. Again, pig iron to be suitable for the basic Bessemer process must be low both in silicon and sulphur, but it must contain enough phosphorus to give sufficient heat to finish the "blow." As is well known the phosphorus is almost entirely oxidized during the "after blow," and it is found in practice that the minimum percentage of phosphorus required in pig iron to give this necessary heat is at least 1.8 per cent. Our native phosphoric ores do not as a rule furnish a pig iron with so high a percentage of phosphorus, so that additions of phosphoric material, such as tap cinder from the puddling furnaces, have to be made to the blast furnace charge in order to supplement the percentage of the phosphorus in the iron.

#### Advance in Bessemer Materials.

For English practice, therefore, and dealing with existing English conditions the Bessemer process, both acid and basic, requires the use of a special pig iron, on the one hand, one peculiarly free from phosphorus and made from expensive imported foreign ores, the supply of which is daily becoming more restricted, and, on the other hand, for the basic Bessemer process a pig iron with more phosphorus than the large majority of our native ores will furnish without extraneous admixture with some phosphorus-giving material. Many substances

have been used for this purpose, and tap cinder is most commonly employed; a material which some 20 years ago was practically a drug on the market, but which is now in great demand, and obtains a fairly high price, as the supply is failing. Many Swedish ores, indeed, are sold now not only for the unit value of iron they contain, but also at an additional unit value for the phosphorus present in them.

As indicating the rise which has taken place in the materials suitable for the acid Bessemer process may be quoted the prices ruling at the end of the last three years. At the close of 1904 rubio ore stood at 15 shillings 6 pence; at the close of 1905 £1 0s. 6d., and at the close of 1906 at £1 3s. 9d., the corresponding prices for East Coast hematite pig iron being in 1904 £2 14s.; in 1905 £3 10s. 6d., and in 1906 £4 1s. 6d.

#### In Germany and the United States.

In Germany the basic Bessemer or Thomas process, as it is there called, still takes the lead over all other processes. Thus, dealing with the figures of 1905, published by the Association of German Iron and Steel Manufacturers, we find the acid Bessemer process was used in the production of only 424,196 tons, while the basic Bessemer process was employed in the production of 6,627,902 tons. Only 165,930 tons were made in the acid open hearth and 3,252,520 tons were made in the basic open hearth. This huge production of basic Bessemer steel was only rendered practicable by the invention in 1879 of the dephosphorizing process, due to the genius of Sidney Gilchrist Thomas, which discovery rendered possible in steel manufacture the utilization of the immense native phosphoric ore deposits of Germany and Luxembourg.

In America the conditions are again different. Apart from the Southern States and the northern portion of New York State there are practically no ores at present available in the United States for the manufacture of pig iron suitable for the basic Bessemer process. The acid Bessemer therefore reigns supreme, and the rivalry is between that process and the basic open hearth process. The former had a long lead, but step by step the open hearth process is overtaking it, and in the immediate future the development of the open hearth will be out of all proportion to the further development of the acid Bessemer process.

#### Open Hearth Supplants Converter.

In proof of this may be cited the changes which the Steel Corporation has under contemplation at some of its plants. Its fine Duquesne Bessemer plant is to be dismantled and 18 additional open hearth furnaces are to be erected in its stead. At the Ohio works, Youngstown, which has hitherto been purely a Bessemer plant, appropriations have been made out of the funds of the corporation for the erection during the present year of 12 standard 50-ton open hearth furnaces; this will enable the corporation to roll open hearth rails and thus to compete with the Bethlehem Steel Company in the North and the Tennessee Coal, Iron & Railroad Company in the South, both of which concerns are already in the field with the basic open hearth rail. Other plants are being rapidly pushed forward for the production of open hearth steel, but, so far as the plants of the Steel Trust are concerned, no new Bessemer plant is known to be under contemplation in the States, nor, indeed, has the trust constructed any new Bessemer plant since its inception, some six years ago. The immense works which the trust is now erecting at Gary, Ind., will be wholly for the manufacture of open hearth steel, and present plans call for 28 standard open hearth furnaces, the output of which when completed will be largely rolled into open hearth rails. Jones & Laughlin, with large works in Pittsburgh, who are not controlled by the United States Steel Corporation, are also erecting extensive new works, and the plans do not yet include a Bessemer plant, but the process of steel manufacture is the continuous open hearth method, so successfully employed at their present works.

#### Lake Ores Growing Leaner.

In any consideration as to the future of the acid Bessemer process in the United States a thorough under-

\* From the London Times Engineering Supplement, February 13, 1907.



standing of the ore situation is essential. As is well known, the Lake Superior, particularly the Mesaba, ores are the mainstay of pig iron production in the North. Each year this ore becomes leaner, and there is a difficulty in keeping the phosphorus contents of the pig iron manufactured from it below the 0.1 per cent. of phosphorus, which is the standard for Bessemer steel in the States. Steel made from such pig iron is dangerously near the limit of safety for some purposes when it is manufactured by the acid Bessemer process, but when treated by any form of the basic open hearth process such pig produces a metal of most excellent quality with phosphorus when desired down to 0.02 per cent., and even less. The carbon content of the steel can also, in the latter class of process, be varied within very wide limits, while it is not so easy to produce 0.6 to 0.7 per cent. carbon steel in the acid Bessemer process, and even if made steel with such high carbon and with 0.1 per cent. phosphorus or thereabouts is certainly not a material that English engineers would look upon with favor for rail purposes.

#### Comparative Economies.

All the facts point in one direction. The Bessemer process, while the actual cost of conversion, apart from the question of waste, is perhaps the cheapest, is yet one which requires, either for acid or basic working, a special quality of pig iron—a quality which is ever tending to become dearer. The waste of metal in the Bessemer must of necessity always be higher than in any form of the open hearth process, and this fact accentuates the importance of the question of the cost of pig iron; the higher the price the greater the cost due to waste.

The yield in ingots by the acid Bessemer process may probably be taken at about 90 to 92 parts of ingots per 100 parts of pig iron converted, while the open hearth method of conversion enables a yield of at least 98 parts to be obtained with good work, and by the continuous process of conversion yields of 107 to 108 parts of ingots per 100 parts of metal converted are commonly obtained when manufacturing hematite pig iron into steel ingots. This increase of ingots over the amount of metal put into the furnace in the metallic form is, of course, obtained by the reduction of the oxide of iron, which is added to purify the bath. Thus theoretically the more impure the pig iron used the greater should be the yield of steel ingots obtained from it, as more iron oxide has to be added to the bath for the purposes of purification. In practice from 22 to 25 per cent. of iron oxide (usually in the form of mill scale) is added to the bath.

#### Significance of the Hill Ore Deal.

There can be no doubt that the transfer of the Hill ore lands to the Steel Corporation upon the terms lately published must tend in the long run to increase permanently the price of pig iron in the States. Reference may be made to the terms of this stupendous deal. The United States Steel Corporation produces rather less than 50 per cent. of the pig iron manufactured in the United States and about 60 per cent. of the steel ingots and castings. Such a percentage to be permanently retained means the control of huge supplies of ore. The lands acquired in the Mesaba Range by Mr. Hill on behalf of the Great Northern Railway interests, whatever amount of ore they may really contain (and this is practically an unknown figure, as much of the land has not been proved), undoubtedly carry immense bodies of ore, and constitute practically the whole of the hitherto unworked parts of this deposit. The price the Steel Corporation has to pay for the ore in these properties, based on a 59 per cent. iron content, is \$1.65 per ton, delivered at the Upper Lake docks, with an increase of 3.4 cents per ton each succeeding year. The minimum agreed to be mined is 750,000 tons for the present year, with an increase of 750,000 tons per annum until it reaches 8,250,000 tons, and thereafter continues on that basis. The Steel Corporation pays a royalty of 85 cents per ton for standard ore, and the haulage cost from the mines to the shipping port is 80 cents per ton, making the \$1.65 mentioned above, and this is, of course, in addition to the cost of mining. It is clear that each year onward till the maxi-

mum tonnage is reached the cost of the ore will increase to the corporation. When the 8,250,000 tons limit is reached in 1917, the cost of the ore, for royalty and haulage to shipping port, will be no less than \$1.99 per ton. This ore deal is here discussed somewhat fully, as probably not only will the cost of Bessemer pig iron in the United States be largely influenced by it in the future, but it will affect also the price of Bessemer pig iron in other countries. It is common knowledge that the Spanish ore supplies from the Bilbao District are becoming both poorer and scarcer, and although other large ore fields exist in the Asturias, which are not yet fully opened out, the ores will not produce a pig iron suitable for the acid Bessemer process.

#### Possibilities of the Two Processes.

The margin for economies in the Bessemer process is less than any which can be made in the basic open hearth process. Unless a radical change is effected in the operation of the Bessemer furnace only small further savings appear possible. It is true that in some Bessemer works the blowing power is still raised by steam obtained from coal burnt under boilers, but, even in cases in which the blowing power is obtained from surplus blast furnace gas, products are absorbed which could otherwise be economically and usefully employed in creating power for other purposes, if the open hearth process were employed.

In the continuous method of steel making, with which the writer's name is associated, there appears to be a great future, due to its capability of using various kinds of metal, and also because of further considerable economies yet possible. It was only in 1900 that the continuous steel process came into use, being first conducted in a furnace of 75 tons capacity. Since that time the size of the furnaces employed has gone up gradually, and the latest which is now under construction will hold some 250 to 275 tons of metal. The commercial limits of the capacity of these furnaces have certainly not yet been reached, but supposing they are built to hold a bath of 500 tons of finished steel, the economies from a unit of this size will be very large. The plants at present in operation or under construction will give a rated output of some 1,500,000 tons per annum.

The furnaces now in use, of 200 tons capacity, are not emptied for many weeks at a time, and, of course, the larger the capacity the more important it will be to keep them full and to empty them but seldom in order to maintain the temperature as near as possible at the constant tapping heat required. It is necessary also to avoid as far as possible reducing the percentage poured in and out, so as to keep the range of impurities to be oxidized in any given period as low as may be practicable. These larger units will reduce fuel and wages per ton of output, and will also permit of the use of cheaper blast furnace metal, as a greater range of impurities can be allowed when additions of only 10 per cent. of impure metal are made which are absorbed in a bath of 90 per cent. of pure metal. A steel process such as this permits of the use of more impure ores in the blast furnace, and also enables fuels to be employed which may contain more phosphorus and sulphur than is possible when the pig iron is to be used in the so-called acid processes of conversion, which do not permit of the removal of phosphorus and sulphur, but rather concentrate these impurities in the steel. For acid steel processes the ores and fuel have to be carefully selected, so that the phosphorus in the pig iron shall not exceed the prescribed limits; consequently the supply of suitable material is limited.

#### High Carbon Low Phosphorus Rails.

The 100-lb. per yard rail in the United States does not give the satisfaction which the lighter section rail does, as the breakages have been more serious since greater duty has been demanded consequent upon the heavier rolling stock used and the increased tonnage carried. The basic open hearth process, with its higher carbon and lower phosphorus, gives a rail of greater reliability and better wearing qualities, and it would appear that when engineers have tested this rail further and have become accustomed to its physical properties under the various tests they will ask for rails with about 0.75 per cent. carbon and 0.04 per cent. phosphorus.



and will not allow rails with about 0.35 per cent. carbon to be used, since a basic open hearth rail with this percentage of carbon will be softer than an acid Bessemer rail with the same amount of carbon.

In the course of the next two years rail plants in the United States will be able to turn out large quantities of basic open hearth rails in excess of what they are doing already. Canada is at present making open hearth rails for her own use; England has already two rail mills making the same quality of steel, and probably Germany, which is the other large rail producer for export, will also have to face the question of manufacturing them from basic open hearth steel, if foreign engineers should prefer an open hearth rail offered at the same price as the one made from basic Bessemer steel. The United States railmakers will have a surplus after supplying their home demands, and this surplus will come into the open markets of the world, and manufacturers in other countries should be in a position to offer a similar rail in competition.

It appears, therefore, to the writer that unless large deposits of pure ore are found and are continually developed to keep pace with the increased consumption of iron all over the world the cost of Bessemer iron will go up, and other ores capable of making a pig iron which cannot be permitted in the acid Bessemer process will be used instead. By these means the manufacture of rails will pass back again to the open hearth process. It will seem strange when this actually comes to pass that steel rails which were first made by the open hearth process should again be produced in this way after the original process had so long been ousted by the Bessemer process.

Of course there are many purposes for which Bessemer steel, containing about 0.10 per cent. phosphorus, is very useful, such as for fencing wire, nails, tin plates and pipes, and probably these articles will continue to be made by this method so long as it is as cheap and gives satisfaction; but when once the Bessemer process loses the manufacture of rails it will sustain a serious loss of prestige and its decadence will begin.

### Armor Plate Bids

The three armor plate manufacturers are actively competing with one another for the small contracts now coming out, as shown by the following official statement of bids opened at Washington, D. C., February 21, by the navy chief of ordnance for furnishing armor for the New York:

Midvale Steel Company, Philadelphia, Pa., 174 tons class A armor, \$688 per ton; 20 tons class B armor, \$410 per ton; 58 tons class C armor, \$398 per ton; 1.36 tons bolts and nuts, \$344 per ton; total for armor, \$150,996; total for bolts and nuts, \$446.84; delivery to commence April 1, 1908, and be completed September 1, 1908.

Bethlehem Steel Company, South Bethlehem, Pa., class A, \$420; class B, \$420; class C, \$420; bolts and nuts, \$420; total for armor, \$105,840; total for bolts and nuts, \$571.20; delivery complete in six months.

Carnegie Steel Company, Pittsburgh, Pa., class A, \$398; class B, \$398; class C, \$398; bolts and nuts, \$398; total for armor, \$100,296; total for bolts and nuts, \$541.28; delivery complete in 4½ months.

The gross loss of all kinds by the San Francisco disaster of last April is estimated at \$1,000,000,000 by a committee of leading insurance companies which acted in unison in settling their losses by fire and earthquake. The committee estimates that the value of the destroyed or damaged property insured by the 233 companies represented in San Francisco was \$315,000,000, on which there was a net insurance loss of \$180,000,000, covered by 102,000 policies.

The Atlanta Tin Plate & Sheet Mill Company, Atlanta, Ind., has increased its capital stock to \$150,000. Edward L. McKee is president, and Edward B. Porter, secretary, both of Indianapolis.

### The Delamater Iron Works Associated Veterans.

The third annual dinner of the Associated Veterans of the Delamater Iron Works was given at the New York Athletic Club, Thursday evening, February 21, 1907. About 45 members and guests were in attendance. The members of the association were all at one time employees of the famous Delamater Works, which in 1880, soon after the death of Cornelius H. Delamater, the principal owner, were sold to the City of New York. It is the purpose of the association to meet once a year to revive experiences and to preserve data connected with an enterprise about which gathers much of historic interest. The works were located on the North River at the foot of Thirteenth street, and the city had condemned a considerable section including the Delamater site with a view to providing increased shipping facilities. The appropriation of land for this purpose, north of Tenth avenue between Little Twelfth street and Twenty-third street abutting the North River, began in the eighties and the excavation of the land so taken has proceeded in recent years. Where the Delamater Works stood there is now 30 ft. of water at low tide. The docks and slips which took the place of the appropriated property are leased by the City of New York to various steamship companies.

#### Graduates of the Delamater Works.

It is noteworthy that the Associated Veterans of the Delamater Iron Works include many men prominent in the engineering profession in New York and other cities. The officers are the following: President, Alexander Miller, Alexander Miller & Bro., Jersey City, N. J.; treasurer, W. M. Parker, Vought & Williams, New York; secretary, J. V. Ireland, E. F. Keating Company, New York. The Advisory Committee consists of H. F. J. Porter, mechanical engineer and H. B. Roelker, consulting and mechanical engineer. Other members of the association are the following, all being of New York, unless otherwise noted:

Wm. A. McNab, Van Wagenen & McNab.  
Andrew J. Caldwell, Mechanical Engineer, Newburgh, N. Y.  
Chas. F. Warren, Decorator.  
G. A. Bronder, Mechanical Engineer.  
Joseph Lewkowitz, Mechanical Engineer.  
A. De Bonneville, Patent Attorney.  
John Ferguson, Fox Hill Foundry, Hoboken, N. J.  
C. C. Capes, Wortherspoon Plaster Mills.  
James Craig, Engines.  
Alex. Cruickshanks, Navy Yard, Indian Head, Md.  
L. A. Bevin, Rider-Ericsson Engine Company.  
O. R. De Lamater.  
M. Fogarty, Fogarty Boiler Works.  
W. D. Forbes, W. D. Forbes, Hoboken, N. J.  
A. B. Frenzel, Denver, Colo.  
F. A. Halsey, Editor *American Machinist*.  
D. N. Junk, Equitable Life Insurance Company.  
H. F. Lytle, J. N. Robins Company, Erie Basin, Brooklyn.  
Thos. J. McCabe, Bureau of Buildings.  
Jno. A. Moran, Atlantic Basin Iron Works, Brooklyn, N. Y.  
William Prellwitz, Ingersoll-Rand Company, Easton, Pa.  
A. H. Raynal, Navy Department, Washington, D. C.  
T. J. Rider, E. C. Chapman & Co., Springfield, Mass.  
Jno. N. Robins, Jno. N. Robins Company, Erie Basin, Brooklyn.  
G. H. Robinson, Banker.  
R. P. C. Sanderson, Seaboard Air Line, Portsmouth, Va.  
Chas. Van Wagenen, Van Wagenen & McNab.  
August Johnston.  
Walter Clarke, Erie Basin, Brooklyn.  
W. S. Miller, Jersey City.  
E. S. Innet, New Rochelle, N. Y.

#### Some Facts About the Monitor.

While the Delamater Iron Works has been made historically famous in connection with the Monitor, it was prominent in the nearly 50 years of its existence among the leading engineering works in New York harbor. John Ericsson was for many years on the firm's engineering staff, and after he had ceased to give his entire time to its interests had a retainer as consulting engineer. The hull of the Monitor was built at the Rowland Iron Works at Greenpoint, N. Y., and the famous destroyer was towed to the Delamater Works for the building and installing of the turret, guns and boilers and engines. The fact is generally overlooked in the magazine articles concerning the Monitor and its spectacular appearance in Hampton

Roads in 1862, that when it entered the engagement with the Merrimac it was not the property of the United States Government. After repeated efforts to have the Government buy the vessel a sale was finally made with the stipulation that the Government would accept it only after it had successfully fought an engagement. Of the five owners of the Monitor, C. H. Delamater had the largest interest. John Newton, the engineer in charge of the vessel in the fight, came from the Delamater Iron Works, and his assistants were picked from his associates there.

The story of the Monitor-Merrimac battle as recounted by the Delamater Veterans brings out many interesting details not generally touched on by the historians. The belated acceptance of the vessel and its hurried manning left little time for drilling after the order came for engaging the Merrimac. The result was that the operation of the turret guns was not as effective as could have been desired. Their discharge was kept up with commendable regularity, as the turret revolved, though not always with special regard to whether the Merrimac was in range.

After the Monitor type of naval fighting machine had been approved by its performance in battle a number of



The Delamater Iron Works as They Existed in 1889.—The Site Is Now Occupied by Docks and Slips for Steamship Lines.

monitors were built at the Delamater Works in the years of the Civil War, the total of such vessels built at all yards being 60. Conspicuous among these was the double turreted Dictator, which was launched from the Delamater Works in the last year of the war. While these works built a number of vessels complete they furnished the boilers and machinery for many more, which were built at various yards in New York harbor. The Matanzas, built for the Panama Railroad, came from the Delamater yard. The propeller wheel originated by John Ericsson was one of the products of the Delamater Works, as were also hot air engines of the Rider and Ericsson types. These latter with improvements are now built by the Rider-Ericsson Engine Company, 35 Warren street, of which L. A. Bevin, a son-in-law of C. H. Delamater, is vice-president. In the eighties the Delamater Works also entered upon the manufacture of refrigerating machinery.

The closing out of these famous works in 1889 was due to the provision in the will of C. H. Delamater, who died in that year, that within six months after his death his entire interest, which was a controlling one, should be disposed of. The condemnation proceedings of the city would not in themselves have caused the discontinuance of the enterprise, as the site was not immediately wanted, and in any event the business might have been transferred to another location. But Mr. Delamater, after years of cordial relations with his employees, and of liberal treatment of the men, and in many cases of their families, had an unpleasant experience with one or two unions in the last few years of his career. It was this in large part that prompted the stipulation that his heirs should wind up the business. The manufacture of the Rider-Ericsson engines was carried on in the original plant for three years after Mr.

Delamater's death, by L. A. Bevin and William Delamater. The machine shops and foundry, with offices, pattern shop, smith shop, &c., occupied the space west of Tenth avenue, between Little Twelfth street and Fourteenth street. Thirteenth avenue was the street immediately skirting the river front. Preceding the Delamater Works were the Phoenix Iron Works, owned by Hogg & Delamater, which were located near the foot of Desbrosses street. They were founded in 1842. C. H. Delamater bought out his partner after the establishment of the works at the foot of Thirteenth street, where the site occupied a total area of 55 lots. The Delamater Iron Works usually employed upward of 1500 men, and in the years of the Civil War the force ran well above 2500 men.

### A New Use for Concrete.

Repairing breaks in the hull of a sunken steamer with concrete is a new departure, but one likely to prove frequently useful. The scheme was successfully tried upon the steamer George W. Elder, which was sunk in the Columbia River over two years ago, and remained under water many months. The boat struck on a jagged rock, which stove several holes in her iron hull; the principal one, about 80 ft. from the bow, measured about 35 ft. in each direction. Through this enormous gap the rock projected into the hold for nearly 11 ft. A bulkhead was built by divers forward of the break, and another aft, and two more aft of the engine room. Heavy canvas was then placed over the rock which projected up into the ship, and concrete was placed over the canvas until a heavy covering had been obtained. This was supported against the outside water pressure by a concrete beam athwart the hold,

measuring 18 x 48 in. and 38 ft. long. The concrete was mixed and placed under water by divers, the cement being sent down a chute in sacks and the stone in a box.

Other smaller breaks having been similarly treated, the water was pumped out of the hold, and the vessel floated and towed 40 miles to a dry dock. One of the problems connected with concluding the operations involved the relation between the capacity of the pumps, which were discharging the water from the hold, and the flow through leaks developing around the huge cement cone, and at other points in the hull which had been severely strained by the action of the current during the 16 months of submersion. By the terms of the contract under which the salvage operations were undertaken the successful wreckers received \$30,000, as against nothing in case of failure. The original owners had sold the wreck for \$10,400, and, as the cost of repairs was about \$20,000, the outlay of the buyer amounted to about \$60,000. After the ship was ready again for service, an offer of \$160,000 was made for her.

Two German iron and steel companies in Upper Silesia have bought the Salangen iron mines in Norway, by consent of the Norwegian Government. The Government requires that one-third of the directors of the mining company be Norwegian citizens, and that only Norwegian engineers and labor be employed. The original Swedish owner of the mine receives about \$400,000 and an equal amount in royalties at 20 öre, or about 5½ cents, a ton. This would indicate 7,000,000 tons. The ore requires concentrating and briquetting, the patent rights for the latter process being included in the sale. The annual output is 200,000 tons, all of which the two German companies will consume.



## Alcohol as Fuel for Farm Engines.

### Report of the Special Commission.

WASHINGTON, D. C., February 26, 1907.—The passage by Congress of the free alcohol law, which went into force on January 1 of the current year, induced the Department of Agriculture last summer to commission Charles E. Lucke, assistant professor of mechanical engineering of Columbia University, and S. M. Woodward, irrigation engineer of the Office of Experiment Stations of the Department, to make a series of comparative tests of alcohol and gasoline in small internal combustion engines such as would be suitable for use on farms. These experiments have been concluded, and Messrs. Lucke and Woodward have prepared a preliminary bulletin setting forth briefly and without technical detail their general conclusions. A much more elaborate report, accompanied by detailed tables, will be published in the course of a few months. Through the courtesy of the Director of the Office of Experiment Stations we are enabled to present the following abstract of the preliminary bulletin:

#### Scope of the Investigation.

The Office of Experiment Stations of this Department, in connection with its irrigation and drainage investigations, has tested a number of different types of gasoline engines with alcohol and obtained figures which show the comparative consumption of gasoline and alcohol in the same engine. The detailed results of these tests will be published in a technical bulletin, but the general results may be given here.

The first tests were made without any particular attempt at obtaining the best adjustment of the engine for each fuel, and showed a consumption of alcohol two or three times as great by weight per horsepower as was necessary with gasoline or kerosene. These figures indicate the necessity or desirability of determining the proper conditions of adjustment, because these were found to have a serious influence on the amount of fuel consumed.

With care in adjusting the engine so as to secure the most economical use of the alcohol, it was found that, under like conditions, a small engine consumed 1.23 lb. of alcohol to 0.69 lb. of gasoline per brake horsepower hour—that is to say, with the best adjustment of the engine for each fuel there was required 1.8 times as much alcohol by weight as gasoline per brake horsepower hour. It was also shown in making this adjustment that it was possible to burn more than twice as much alcohol as stated, by improper adjustments, and still have the engine working in an apparently satisfactory way. The range of excess gasoline which might be burned without interfering seriously with the working of the engine was not so great, being a little less than twice as much as the minimum.

These early experiments, therefore, confirmed the early results secured in Germany—namely, that an engine built for gasoline or kerosene will, when unchanged, require about twice as much alcohol by weight for the same work; but they also indicate something that is not pointed out by the reports sent us from abroad—that is, the great importance of securing the best adjustment of the machine.

To understand why this adjustment of the machine can have such a serious effect, and at the same time understand why exploitation and study were successful abroad in raising the efficiency of the alcohol engine from 12.2 to over 30 per cent. in five or six years, requires a knowledge of technology. The reasons can only become clear to one understanding the mechanism of these engines, and to one familiar with the chemistry of the fuels and the physical theories of explosive combustion.

#### Practical Experience in Germany.

There is one report available on the comparative value in unskilled hands doing commercial work of alcohol engines compared with the machines they have displaced, both with respect to fuel consumption and cost and the care and expense necessary for maintenance. Professor Strecker of Leipzig sent a circular letter to 120 farmers

in Germany who were using alcohol engines, which had displaced steam engines for farm purposes. There were 120 of these engines, of three different makes and ranging in size from 6 to 25 hp. These engines were working more or less throughout the year, the maximum number of hours being 2500 per year, the minimum 324 and the average 996.

The first question addressed to the farmers concerned the amount of work these engines were capable of doing compared with the engines they displaced at the same rated horsepower; 46 per cent. thought them equal, 47 per cent. thought them superior, and only 4 per cent. considered them inferior, but qualified this by stating that the steam engine must be fired with greater regularity.

The next question concerned the expense for fuel. The average amount of coal used in a steam engine was 4.28 kg. per metric horsepower hour, equivalent to 9.55 lb. per brake horsepower hour, with an addition of 100 lb. per day for starting. The price of coal averaged 20.7 marks, which is equivalent to \$4.47 per ton. The fuel used in the alcohol engine was not all the same. Nineteen per cent. used German denatured alcohol, 81 per cent. used a mixture containing 20 per cent. benzole, and the consumption varied from 1.1 liters per German horsepower hour (2.35 pints per brake horsepower hour) maximum to 0.43 liter per German horsepower hour (0.92 pint per brake horsepower hour) minimum, the average being 0.57 liter per German horsepower hour (1.22 pints per brake horsepower hour).

#### Cost of Alcohol and Gasoline.

Denatured alcohol cost at that time in Germany 17 marks per hectoliter (15.2 cents per gallon), and benzole cost 21.5 marks per hectoliter, equivalent to 19.4 cents per gallon. The 20 per cent. benzole mixture therefore costs 17.9 marks per hectoliter (16.11 cents per gallon). Gasoline was almost invariably used for starting, and 85 liters (22.4 gal.) seems to be the average amount necessary per year, costing 36 marks per hectoliter (32.4 cents per gallon), with a total cost for starting of about 30 marks (\$7.25) per year. The fuel consumption averaged 4.28 km. of coal per horsepower hour (9.41 lb.) and 0.57 liter (1.2 pints per horsepower hour) for alcohol.

This is rather higher than reported in the various tests on these engines, but these figures represent the average of 74 engines, considering only those of 10 hp., and assuming that the large sizes balance the smaller sizes. With these figures a steam engine with an average of 10 hp. operating 1000 hr. per year will cost \$240 per year for fuel. The alcohol engine, operating the same number of hours at the price given, would cost \$253 per year for fuel. This makes it appear that the cost of operation of the alcohol engine is greater than the steam engine in spite of superiority of the alcohol engine compared with steam.

It is next pointed out that the transportation of alcohol in tanks and barrels is cheaper than that of coal (loose), and the convenience in handling and the elimination of a man constantly attending the fire, such as was found necessary with steam engines, really give the alcohol engine a small advantage on operating cost. It was also shown that the cost of lubricants is no greater for the alcohol engine than for the steam engine, while the cost of repairs seems to be less. Of the 120 farmers, 9 per cent. found the alcohol engine to cost more to maintain, 34 per cent. found no difference, and 57 per cent. found the maintenance less for the alcohol engine. Another interesting thing brought out by the inquiry was that the alcohol engine was capable of operating in all kinds of weather, in some cases with the temperature at 18 degrees F. below freezing, only a little more time being required to start up. It was found also that there was absolutely no difficulty in instructing the ordinary person in the proper methods of handling and operating these engines.

The number of such engines in use in Europe seems to be quite large, although definite information on this is difficult to obtain at the present time. One estimate, on fairly good authority, places the figure between 5000 and 6000 in Germany. The number that will probably



be used in this country is difficult to estimate, but the large number of builders now engaged in turning out gas and gasoline engines—one firm alone being equipped to turn out 425 per day—seems to indicate that, if the cost of alcohol fuel compared with gasoline and coal be not too great a handicap, there is a probability of an exceedingly large industrial development in this field, though not immediately.

Besides the cost of alcohol per horsepower-hour compared with gasoline, there is another element that must be favorable before the introduction of the alcohol engine can become very wide, and that is the interest of the builders. From correspondence with the builders of gasoline and kerosene engines in this country it appears that practically all of them are indifferent to the introduction of alcohol machines. They are quite willing that their regular engines be sold for and used with alcohol, but they are not inclined to give any guarantees on performance. Individually they are decidedly averse in nearly every case to undertaking the development of a special alcohol engine, because this means extra expense in drawings, patterns, jigs, tools, &c., and it is certain that they will do very little so long as the public will continue to buy gasoline and kerosene engines and not insist upon having a specially designed alcohol machine.

#### Conclusions.

The following conclusions regarding the use of alcohol as fuel for engines, as compared with gasoline, are based on the preliminary results of the Department's experiments, upon results of the European experiments and investigations which have been presented in the foregoing pages and upon the general knowledge of the authors:

1. Any engine on the American market to-day, operating with gasoline or kerosene, can operate with alcohol fuel without any structural change whatever, with proper manipulation.

2. Alcohol contains approximately 0.6 per cent. of the heating value of gasoline, by weight, and in the Department's experiments a small engine required 1.8 times as much alcohol as gasoline per horsepower hour. This corresponds very closely with the relative heating value of the fuels, indicating practically the same thermal efficiency with the two when vaporization is complete.

3. In some cases carburetors designed for gasoline do not vaporize all the alcohol supplied, and in such cases the excess of alcohol consumed is greater than indicated above.

4. The absolute excess of alcohol consumed over gasoline or kerosene will be reduced by such changes as will increase the thermal efficiency of the engine.

5. The thermal efficiency of these engines can be improved when they are to be operated by alcohol, first, by altering the construction of the carburetor to accomplish complete vaporization, and, second, by increasing the compression very materially.

6. An engine designed for gasoline or kerosene can, without any material alterations to adapt it to alcohol, give slightly more power (about 10 per cent.) than when operated with gasoline or kerosene, but this increase is at the expense of greater consumption of fuel. By alterations designed to adapt the engine to new fuel this excess of power may be increased to about 20 per cent.

7. Because of the increased output without corresponding increase in size alcohol engines should sell for less per horsepower than gasoline or kerosene engines of the same class.

8. The different designs of gasoline or kerosene engines are not equally well adapted to the burning of alcohol, though all may burn it with a fair degree of success.

9. Storage of alcohol and its use in engines are much less dangerous than that of gasoline, as well as being decidedly more pleasant.

10. The exhaust from an alcohol engine is less likely to be offensive than the exhaust from a gasoline or kerosene engine, although there will be some odor, due to lubricating oil and imperfect combustion, if the engine is not skillfully operated.

11. It requires no more skill to operate an alcohol engine than one intended for gasoline or kerosene.

12. There is no reason to suppose that the cost of repairs and lubrication will be any greater for an alcohol engine than for one built for gasoline or kerosene.

13. There seems to be no tendency for the interior of an alcohol engine to become sooty, as is the case with gasoline and kerosene.

14. With proper manipulation there seems to be no undue corrosion of the interior, due to the use of alcohol.

15. The fact that the exhaust from the alcohol engine is not so hot as that from gasoline and kerosene engines seems to indicate that there will be less danger from fire, less offense in a room traversed by the exhaust pipe and less possibility of burning the lubricating oil. This latter point is also borne out by the fact that the exhaust shows less smokiness.

16. In localities where there is a supply of cheap raw material for the manufacture of denatured alcohol, and which are at the same time remote from the source of supply of gasoline, alcohol may immediately compete with gasoline as a fuel for engines.

17. If, as time goes on, kerosene and its distillates become scarcer and dearer by reason of exhaustion of natural deposits, the alcohol engine will become a stronger and stronger competitor, with a possibility that in time it may entirely supplant the kerosene and gasoline engines.

18. By reason of its greater safety and its adaptability to the work alcohol should immediately supplant gasoline for use in boats.

19. By reason of cleanliness in handling the fuel, increased safety in fuel storage, and less offensiveness in the exhaust, alcohol engines will, in part, displace gasoline engines for automobile work, but only when cost of fuel for operation is a subordinate consideration. In this field it is impossible to conveniently increase the compression because of starting difficulties, so that the efficiency cannot be improved as conveniently as in other types of engines.

20. In most localities it is unlikely that alcohol power will be cheaper or as cheap as gasoline power for some time to come.

W. L. C.

#### The Recession of Niagara Falls.

A pamphlet by G. K. Gilbert of the United States Geological Survey treats of the rate of recession of Niagara Falls. The erosive work of the cataract, he says, is exceptionally rapid. This depends primarily on the great power of the falling water, but partly on the character of the local geologic structure. The recession of the American Fall is much slower than that of the Horseshoe Fall. The sheet of water on its brink is comparatively thin, and the force the water acquires in falling is not sufficient to remove the larger of the limestone blocks broken from the ledge above. The blocks are therefore heaped at the base of the cliff and serve as a natural riprap to protect the shale against wear.

The data for computing the rate of recession of Niagara Falls include surveys of the crest line made in 1842, 1875, 1886, 1890, and 1895, and camera-lucida sketches made in 1827. During the period covered by these data the rate of recession has not differed to an important extent from the natural conditions. The present and prospective diversions of water for economic uses interfere with the course of nature and may be expected to modify the rate of recession.

The rate of recession of the Horseshoe Fall, or the rate of lengthening of the Niagara gorge, during the 63 years from 1842 to 1905 is found to be 5 ft. per annum, with an uncertainty of 1 ft. For the 33 years from 1842 to 1875 the rate was apparently slower than for the 30 years from 1875 to 1905. The rate of recession of the American Fall during the 78 years from 1827 to 1905 was less than 3 inches per annum.

The Bessemer & Lake Erie Railroad, controlled by the Carnegie Steel Company, expects to use this year 140,000 of the standard I-beam type of steel ties made in the company's Homestead steel works.





	Cents.		Cents.
March 1.....	6.00	May 17.....	6.70
April 5.....	6.10	May 24.....	6.75
May 3.....	6.70	June 1.....	6.45
May 10.....	6.75	July 5.....	5.75

The market dropped rapidly thereafter. Indeed, neither before 1899 nor afterward, until 1905, was there 6-cent spelter at St. Louis. From January 4, 1905, to March 15, 1905, our St. Louis quotation ranged from 5.97½ to 6.15 cents, while from October 25, 1905, to January 31, 1906, it ranged from 6 to 6.50 cents. With these three exceptions, there has not been 6-cent spelter at St. Louis until the present movement, which may be said to have begun in the middle of September, when the 6-cent line was crossed. Since then our St. Louis quotations have been as follows:

	Cents.		Cents.
October 3.....	6.15	December 19.....	6.55
October 10.....	6.05	December 26.....	6.55
October 17.....	6.12	January 2.....	6.55
October 24.....	6.20	January 9.....	6.60
November 7.....	6.20	January 16.....	6.90
November 14.....	6.35	January 23.....	6.75
November 21.....	6.25	January 30.....	6.75
November 28.....	6.30	February 6.....	6.75
December 5.....	6.35	February 13.....	6.80
December 12.....	6.50	February 20.....	6.80

As already noted, there had been no change in the spread between black and galvanized pipe since the summer of 1904. Prior to that time the spread between black and galvanized merchant pipe was 10 points, or about \$20 per net ton, throughout the list of sizes. Since the rearrangement in the summer of 1904, and one slight modification afterward, there has been a spread of 10 points on ¾ to 6 in., 12 points on ½ in., 14 points on ¾ in., 15 points on 7 to 12 in. and 16 points on ⅝ and ¾ in. As spelter averaged lower than 5 cents, St. Louis, in 1904, or easily half a cent less than in 1903, the rearrangement made in 1904 does not fit present market conditions in spelter. In the older days of pipe manufacture spreads of 16 points and more were common. That was on cheaper spelter, and represented less economical processes and larger profits on intermediate operations.

In sheet products the same reduction in spread between black and galvanized over a long period of years, with no adequate increase in very recent years to cover the increased cost of spelter, is to be observed.

In the early part of 1898 the Iron and Steel Sheet Manufacturers' Association issued a chart to illustrate the decreasing spreads between pig iron, billets and sheet bars on the one hand, and steel sheets on the other, also the decrease in the spread between black and galvanized sheets. The years which have been added to history since 1898 show a further remarkable decrease in the spread between black and galvanized sheets, having regard to the cost of spelter. The sheet association chart showed a spread between black and galvanized of No. 28 gauge averaging pretty regularly \$1.75 per 100 lb. during 1893, a decline from \$1.75 to \$1.40 in 1894, an increase from \$1.40 to \$1.65 in 1895, a decline to \$1.10 in 1896, and an average through 1897 of about \$1.15. In 1893 spelter did not average as high as 4 cents a pound, although the spread between black and galvanized sheets was \$1.75. In 1897, when the spread had been reduced to \$1.15, the average price of spelter was about 4 cents.

In more recent years the spread between black and galvanized sheets has been quite steadily maintained at \$1 per 100 lb., although spelter has been much above 4 cents a pound. Throughout 1906, and until January 24 of this year, the spread has been \$1.05. Except during the early and late months of 1906, spelter at St. Louis was under 6 cents a pound. At present spelter is fully a cent a pound higher, and the spread has been increased, by the January 24 advance, by but 10 cents

per 100 lb. An advance of 1 cent a pound in spelter would easily call for double this advance in the coated sheets.

The comparison between a spread of \$1.75 per 100 lb. in black and galvanized sheets in 1893, with spelter at less than 4 cents a pound, and a spread of \$1.15 at present, with spelter at nearly 7 cents a pound, illustrates how drastic has been the cutting out of profits on intermediate operations. The time was when there was a profit in buying black sheets and galvanizing them; such a proposition could not now be given a second thought.

### The Cleaning of Blast Furnace Gases.

A question to which blast furnacemen have been compelled to give attention since flue dust evils have become more aggravated is the economy of cleaning gases that are to be burned in stoves or under boilers. Gas washing is growing more common, and locally designed plants for cleaning gas, where there is no intention to install gas driven engines, have multiplied in the past few years. Recently the Cleveland, England, Institution of Engineers discussed the question, after hearing a paper by H. G. Scott of Middlesbrough, on "The Utility of Cleaning Blast Furnace Gases." The position was taken in the paper that the cleaning of gas for stoves and boilers with now known machinery is too costly. The writer presented eight years' records, showing that only 15 per cent. of the dust remains in a furnace plant where no dust catchers are employed, and that the remaining 85 per cent. is carried away into the atmosphere by the chimneys. The figures given for a year's operation of three furnaces producing 850 tons a week each show that of the 15 per cent. of deposited dust 82 tons was taken in that period from the boiler and boiler flues, 172 tons from stoves and 180 tons from gas mains. The total cost of removing this dust was £235 for the year. It is figured that if all the gas had been washed the expense would have been not only the cost of driving the washers, requiring 60 to 70 hp. each, but the cost of removing about 15,000 tons of mud containing 80 per cent. of moisture. Mr. Scott calculated that a plant which would thoroughly wash all the gas from a furnace producing 130 tons of iron a day would cost £3500 a year, and that to clean the gas from such a furnace down to 0.5 g. of solid matter per cubic meter would cost over £2000 a year.

In the discussion on the paper testimony in support of the writer's experience was given, and on the other hand the opinion was expressed that it is economical to clean furnace gas, even though it is simply to be used in stoves and for raising steam. One view was that the best economy probably lay in cleaning all gas down to 1 g. or ½ g. of dust in a cubic meter, and then employing a Theisen washer for the portion of the gas used in explosive engines, cleaning this down to 0.0025 g. It was stated that 16 per cent. more of cool, clean gas would be required under boilers than if hot, dirty gas were so used. From Bolckow, Vaughan & Co.'s Middlesbrough furnaces came the statement that this firm was the first in the Cleveland District to put in the Theisen washer, but as it did not give the expected results it was abandoned. One engineer calculated that even at the high cost given in the paper for cleaning all the gas in Theisen washers, there would be an available economy of 4s. 9d. per ton of pig iron. On behalf of gas washer interests the following estimate was made for a plant for three furnaces, which was the basis of the calculation in the paper:

Taking the gas from a furnace making 1000 tons of pig iron per week, with a consumption of 22½ cwt. of coke per ton of



iron made, to be cleaned to a purity of 0.1 to 0.5 g. per cubic meter—i.e., to be made suitable for heating purposes: A No. 14 Thelsen washer would treat more than the entire quantity of gas driven off, allowing for its being delivered to the washer at a comparatively high temperature. The approximate cost of that apparatus with vapor separator and motor would be about £1650, or £4950 for three furnaces. Adding £2000 for foundations, pipes, settling tanks, &c., the total cost would be £7000. The cost for working would be £5830 a year.

In the United States, with the conspicuous exception of the Lackawanna Steel Company, which has worked out a method of washing gas for engines, as already indicated in these columns, the problem dealt with has been that of washing out the heavier solids carried over by the gas, thus freeing the flues, stoves and boilers in large part of accumulations which are expensive both in labor and stoppages. In *The Iron Age* of January 17, 1907, page 198, an apparatus was described which obviated the drawbacks of cool, moist gas by passing it, after washing, through regenerative chambers which the hot gas had heated in passing from the down-comer to settling chambers and then to the washer. Elsewhere in this issue an account is given of the procedure followed at a Virginia furnace, which suggests the possibilities of economical dry cleaning of the gases passing to stoves and boilers. At other furnaces in the United States centrifugal dry cleaning has been experimented with in the past two years, and though data are not available as to the economies secured it is understood that the method has met the demands of furnace managers who have not been persuaded of the economies of thorough washing of their gases.

## CORRESPONDENCE.

### More Concerning College Growth.

To the Editor: In *The Iron Age* for February 14 is a very interesting table on College Growth, and I have taken the liberty of comparing the table with some data published by Professor Tombo of Columbia in *Science* for December 31, 1906, with results that surprise me considerably. In that copy of *Science* the years 1902 and 1906 were compared, and also the years 1905 and 1906, and I give below the table, making the last column of the table in *The Iron Age* for February 14 a basis of comparison. As I understand it, comparison is made not between the total number of registered students, but leaving out the summer school and other short or special courses:

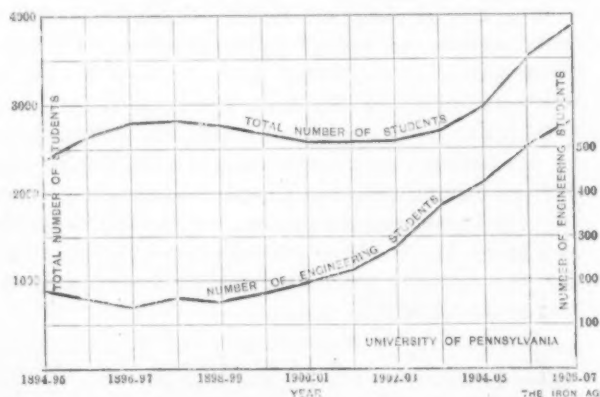
#### Percentage Increase in Students for the Periods Named.

	1895-1905.	1902-'06.	1905-'06.
Harvard .....	28.4	-2.29	1.14
Yale .....	32.9	24.00	0.00
New York .....	195.5	46.19	12.74
Columbia .....	109.0	8.09	-2.21
Cornell .....	97.2	24.20	5.27
Princeton .....	24.8	0.52	0.00
Pennsylvania .....	35.2	54.34	14.69
Illinois .....	459.0	...	4.81
Chicago .....	90.3	10.13	3.59
Michigan .....	32.0	24.18	3.38
Wisconsin .....	102.8	7.64	0.52
Minnesota .....	62.6	12.52	...
Stanford .....	41.1	11.03	-4.73
California .....	79.0	-11.71	-10.61

It is rather interesting to note that the large gains in attendance must have been made largely in the first five years of the period 1895-1905, as the growth of the last five years was considerably lower, some of the institutions even falling off in numbers. This, however, is not the case with New York University nor with the University of Pennsylvania, which I have added to the table. While most of the institutions are growing, there are none of them that can compare with the University of New York or with the University of Pennsylvania in their rate of growth for the last five years.

The accompanying chart is of interest in this connection, as it shows the total number of students at Pennsylvania year by year, since 1894, graphically demonstrating the rapid rate of increase during the last five years.

On the same diagram I have plotted to amplified scale the total number of engineering students at the University of Pennsylvania, showing that the growth has been practically an increasing one, year after year, since 1899.



Graphical Diagram of the Growth of the University of Pennsylvania for the Last 13 Years.

I think it will be found that if corresponding diagrams are drawn for other institutions, the growth of the engineering departments will show something of the same relation to that of the whole number of students as is shown on this chart.

H. W. SPANGLER,

Professor of Mechanical and Electrical Engineering, University of Pennsylvania.

PHILADELPHIA, February 18, 1907.

### The Philadelphia Machinery Dealers' Banquet.

The Philadelphia Machinery Dealers' and Supply Association, which was organized about a year ago to consider conditions attending the machinery and supply trade in the Philadelphia territory, held its first annual meeting and banquet at the Bellevue-Stratford Hotel on the evening of February 20.

At the annual meeting, which was held previous to the banquet, routine business was dispensed with, the only formal action taken being the election of officers for the ensuing year, which resulted as follows: Alfred M. Maddock of Maddock & Co., president; W. E. Shipley, vice-president, and Frank Clouds of Powell, Clouds & Co., secretary-treasurer.

The banquet was served in the Red Room of the hotel. Fred C. Spaulding acted as toastmaster, and addresses were made by President-Elect Maddock, Vice-President-Elect Shipley, J. R. Vandyke, Frank Toomey, representatives of the trade press, and others. Those present included W. H. Billamy and J. A. Cochrane of Bellamy & Cochrane; Frank Bancroft, L. H. Heist and W. J. Wagner of Manning, Maxwell & Moore; Alfred Maddock and Henry Maddock of Maddock & Co.; Frank Clouds and P. W. Powell of Powell, Clouds & Co.; W. E. Shipley, J. I. Stewart, W. S. Hagamen, Fred Holz, Jr., and Chas. C. Brogan, representing W. E. Shipley; J. R. Vandyke of the Vandyke, Churchill Company; Fred C. Spaulding and Jesse Rockey of Spaulding & Metcalf; Charles Bond and S. Condrick, representing Charles Bond; Herman Swartz, Edw. W. Sees, Charles D. Wood and Robert W. Sees, representing Sees & Faber; Wm. Walters of Wm. P. Walters Sons; Frank Toomey, W. E. Caldwell, Cleveland Twist Drill Company, and A. H. McGhee, representing the *American Machinist*; Louis Pelletier, *Machinery*, and A. A. Miller, *The Iron Age*.

The National Lead Company, New York, has purchased the Magnus Metal Company, which operates plants at Depew, N. Y., Chicago, Ill., St. Louis, Mo., Topeka, Kan., Jersey City and Newark, N. J., and New Haven, Conn., and which is capitalized at \$3,000,000. The purchase price is understood to be about \$5,000,000. The company manufactures composition metals and is a very large consumer of copper. H. H. Hewitt of Buffalo, N. Y., president of the Magnus Metal Company, is to continue in his present position to direct the management under the new owners.

## Mexican Business Conditions.

### Heating Stoves in Demand.

DURANGO, February 21, 1907.—For the first time in many years the inhabitants of the Valley of Mexico, on February 11, enjoyed the experience incidental to a heavy fall of snow, which lent diversity to the usual appearance of tropical verdure and incidentally gave a fillip to the local demand in the capitol for household heating apparatus. Severe weather has also been reported from various other elevated points with, doubtless, a like result. Most of the enterprising hardware houses in leading trading centres at high altitudes now keep on hand heating stoves of American manufacture, having been taught by past experience that the fickleness of the winter season and the steadily increasing additions to the foreign colonies, principally Americans, combine to make this forethought upon their part a profitable one. In this city, for example, at the beginning of the winter season an entire window was given to the display of a handsome assortment of ornamental heating stoves for both coal and other classes of fuel, in one of the principal hardware and general supply stores upon one of the main thoroughfares. The season is a short one, and is not, of course, to be compared in point of severity with that experienced north of the Rio Grande, but there are many days when the biting chill of morning and evening makes artificial warmth in the dwelling a necessity. The natives generally, however, even those who can afford to buy heating stoves still prefer, on account of deep-rooted prejudice, to shiver and suffer, but the fact should not discourage those manufacturers of heating apparatus who appear to have entered upon the missionary work of cultivating the Mexican trade in this line.

### Railroad Concessions and Construction.

A company with the title of the Mexican Milling & Transportation Company has been organized in the city of Guanajuato, with \$2,000,000 capital, for the purpose of acquiring a number of mining properties in the district and of constructing a railroad, 30 miles long, at a cost of \$13,800 per mile, including equipment, to transport the product of the mines to the mills.

Manuel Rubio Arriaga has obtained a concession to construct a line of railroad from the city of Queretaro, the capital of the State of that name, to Villa de Acambaro, in the State of Guanajuato. Seven years are allowed for the work, and the surveys must begin within six months. Certain land owners in the State of Queretaro who will be benefited by the road have subscribed the sum of \$50,000 as a subsidy to be paid to the company which constructs the line.

A railroad is projected between the cities of Durango and Guadalajara by way of Guiterrez, a station on the Mexican Central. G. C. Palmer of Zacatecas is interested in the enterprise and is endeavoring to raise the necessary capital for the construction. The distance is about 300 km. and the estimated cost of the work is \$3,000,000. The Mexican Central located a line between Durango and Guiterrez about three years ago.

The Cananea, Yaqui River & Pacific Railway Company, a Southern Pacific enterprise, has given a contract to Grant Brothers of Los Angeles, Cal., for the construction of 80 miles of track between Buenavista and Tonichi, on the Yaqui River, and for 68 miles, from Corral to Alamos.

The Pan-American Railroad is now completed as far as Mapaxtepec, 311 km. from San Geronimo, and the operation of the road to the town of Mapaxtepec only awaits the approval of the time card by the government.

The National Railway Company of Mexico is pushing construction work on a branch line 35 km. in length, between Jarita and El Pan, in the State of Nuevo Leon which will open up coal fields in that district.

It is reported that the entire line of the Southern Pacific's Guaymas-Guadalajara extension will be constructed by Grant Brothers, the Los Angeles contractors.

According to a statement made by Mr. Hillwell, of the Kansas City, Mexico & Orient Railway, it is the intention of the company of which he is president to construct

a branch of the railway to Spofford Junction to connect with the Southern Pacific and the Mexican Central at Ciudad Porfirio Diaz.

Work is being pushed upon the Mexican Central, Atonilco's branch, 7 km. from Ocotlan having been completed and connections made with the main line.

Application for a concession to construct a 50-km. line of railroad from the city of Aguascalientes to the hacienda of Señor Rincon Gallardo in the State of Jalisco is about to be made. The line will be narrow gauge.

A dispatch from Chihuahua announces that a concession has been granted to unnamed individuals to construct a railroad from Madera to Becerac, on the banks of the Vabispe River.

### Industrial Notes.

In the first three months of the current fiscal year the total value of the imports greatly exceeded the aggregate for the corresponding period of last year, the sum being \$50,920,045.77, against \$38,900,435.32. In the present year's imports the following items appear: Machinery and apparatus, \$6,247,335.84; vehicles, \$1,709,946.06; arms and explosives, \$943,147.34. The exports in the first quarter were valued at \$53,767,800.74. The imports are thus apportioned among foreign countries:

Imports three months.	1906-1907.	1905-1906.
United States.....	\$31,048,423	\$20,928,210
Germany .....	6,044,849	4,850,002
Great Britain.....	5,102,919	4,766,777
France .....	4,341,295	4,316,650
Spain .....	1,834,237	1,729,561
Belgium .....	638,701	606,365
Italy .....	410,834	283,952

The American Consul at Hermosillo in a recent report upon trade conditions in the State of Sonora says:

With the opening of the Yaqui District there will be a demand for American farming implements, especially steam plows, thrashers, &c., as quite a large number of ranches will be laid out, and as the ground is nearly perfectly level they can be used to a great advantage. Windmills will also be used to a great extent, and it would be well for American manufacturers to advertise their goods in this section of the country and send catalogues.

A concern in the city of Monterey with the title Compania Manufacturera de Tubos de Plomo, S. A., is engaged in turning out lead pipe for use in water and drainage systems.

The Sinaloa Land & Water Company, which owns the Yevavito property in the State of Sinaloa intends to carry out an extensive irrigating enterprise, which involves the construction of a canal estimated to cost \$2,000,000.

Concessions for the use of water for generating power and other purposes have been obtained by the following: S. P. Applewhite of the City of Mexico, to use the waters of the Rio Grande, district of Culcatlan, State of Oaxaca, for the development of electric power for the lighting of the city of Oaxaca and for transmission to other places; J. B. Tanner to utilize the waters of the Jamapa River, State of Vera Cruz, for motive power purposes; Señora Ernestina Rubio de Isita to use for irrigation the waters of the San Juan del Rio, in the States of Mexico, Hidalgo and Queretaro, and Señora Alejandro V. de Redo to use for a like purpose and for motive power in the operation of cotton mills in the city of Culiacan, Sinaloa, water of the Tamazuela River to the volume of 1192 liters per second.

J. J. D.

The street railroad car building companies controlled by the Brill interests have been consolidated into a new company called the J. G. Brill Company, which is capitalized at \$10,000,000. The companies merged into the new corporation are the J. G. Brill Company, Philadelphia, Pa., American Car Company, St. Louis, Mo., G. C. Kuhlman Car Company, Cleveland, Ohio, and the John Stephenson Company, Elizabeth, N. J. This is simply a consolidation of companies already controlled by the same interests and is in no way connected with the combination of all the street railroad car builders which was attempted about a year ago. James Rawle is president of the new company; John A. Brill, first vice-president; Samuel M. Curwin, second vice-president and general manager; M. Herman Brill, secretary; Edward Brill, treasurer and Edward P. Rawle, assistant treasurer.



## OBITUARY.

FRANK J. HEARNE.

Col. Frank J. Hearne, president of the Colorado Fuel & Iron Company, died of peritonitis at Denver, Colo., February 25. For nearly a week his condition had been serious, the patient's resistance having no doubt been diminished by the effects of an experience with blood poisoning a few years ago, the result of a fall. Colonel Hearne's death means the loss to the iron trade of an attractive and forceful personality, whose activities as a manufacturer of iron and steel cover a period of 35 years. These years were chiefly devoted to the development of the tube industry at the Riverside Iron Works, at Wheeling, W. Va. Colonel Hearne was born at Cambridge, Md., September 21, 1846. He received his technical education at the Troy Polytechnic Institute, and immediately after his graduation became assistant engineer of the Hannibal & St. Joseph Railroad. In 1872, at the solicitation of his father, he became assistant manager of the Riverside Iron Works, at Wheeling, W. Va.,



FRANK J. HEARNE.

and the subsequent growth of the plant was largely due to his great energy and activity. Upon the formation of the National Tube Company in May, 1899, he was elected vice-president of the company, in charge of manufacturing, and succeeded to the presidency upon the retirement of E. C. Converse, who became a member of the Executive Committee of the United States Steel Corporation. Colonel Hearne resigned from the National Tube Company in August, 1902, with the expectation of retiring from active business life, and mention was made at the time of the coincidence that his father also had retired at the age of 56. In the following year he accepted the presidency of the Colorado Fuel & Iron Company and the chairmanship of its Board of Directors. In the past four years the development of the company's properties has been pushed forward steadily on the sound lines dictated by his broad experience.

WILLIAM C. McMILLAN.

After an eight-weeks' illness of pneumonia, Wm. C. McMillan, one of the most prominent of Detroit manufacturers and financiers, died in that city on Thursday, February 21. A heart trouble of two years' standing, a dilatation resulting from stress of business, was a serious complication. Born in Detroit, March 1, 1861, Mr. McMillan was the son of the late James McMillan, who represented Michigan in the United States Senate for a number of years. He entered business after graduating from Yale University in 1884, as an employee of the Michigan Car Company. In three years he was appointed general manager of the company. In 1892 he brought

about the consolidation of the Michigan and Peninsular Car companies, which, in February, 1899, were absorbed by the American Car & Foundry Company. After his father's death he became the executive head of the McMillan estate, comprising interests of great magnitude, marine, manufacturing, real estate and banking. As indicating the wide range of his activities a partial list is given of the official positions Mr. McMillan held in connection with leading Detroit and outside enterprises: President and general manager Detroit & Cleveland Navigation Company, general manager Detroit & Buffalo Steamboat Company, director Michigan Steamship Company, director Wolverine Steamship Company, vice-president Duluth & Atlantic Transportation Company, president Detroit Shipbuilding Company, director American Shipbuilding Company, president Michigan Malleable Iron Company, president Detroit Seamless Steel Tube Company, president Monarch Steel Castings Company, treasurer Detroit Railroad Elevator Company, secretary Detroit Iron Furnace Company, director Peninsular Sugar Company, director Detroit Union Railroad Depot & Station Company, chairman executive committee Michigan State Telephone Company, chairman executive committee Union Trust Company, director First National Bank, director State Savings Bank, president Detroit Hotel Company, treasurer Detroit Manufacturers' Railroad, president and general manager Cleveland & Toledo Line, trustee Mutual Life Insurance Company of New York. The McMillan marine interests were of vast importance. One of Mr. McMillan's notable achievements was the organization of the passenger service between Detroit and Buffalo. The original investment was \$1,300,000 in two steamers which made the run in 14 hr., and though there were some who had their misgivings the success of the enterprise has vindicated the judgment of its promoter. What is spoken of as a monument to Mr. McMillan is the Hotel Pontchartrain, which he was building at Detroit at a cost of \$1,500,000.

Wm. C. McMillan followed his father in taking an active interest in politics. In 1902 he was urged to become a candidate for a vacant United States Senatorship but declined. He became a candidate, however, last month to succeed the late Senator Alger, but was unsuccessful. Of his business methods it is said that "like his father he planned in a comprehensive way; he let men into his business, gave them a stock interest and, like his father, he carried them on the books, and later, as the business grew, the respective partners became rich in their own rights. He did not look after the details, he left that to the men in charge. Mr. McMillan always regarded the function of his office as that of a financial clearing house; he adjusted the financial balance."

JAMES McKINNEY, senior partner of the firm of James McKinney & Son, operating the Albany Architectural Iron Works & Foundry, Albany, N. Y., died February 10, aged 82 years. He was born in Duanesburgh, Schoharie County, N. Y. He began his business career by becoming a clerk in his grandfather's general store at Canajoharie, N. Y., then entered a foundry at Palatine Bridge, N. Y., and afterward removed to New York City and was employed by several concerns in different lines of the iron business, desiring to get all the information and experience possible with the hope of starting in business for himself. In 1850 he went to Albany and in 1857 embarked in the foundry business with Abram Mann under the firm name of McKinney & Mann. The copartnership was dissolved in 1867, after which Mr. McKinney conducted the business alone. In 1884 he took into partnership his son, Edward N. McKinney, and the firm became James McKinney & Son. He took an interest in public affairs, having served as a member of the Board of Aldermen. He was elected a trustee of the Albany Exchange Savings Bank in 1886 and became its second vice-president in 1893.

GEORGE A. PIERCE, formerly treasurer of the Holyoke Belting Company, Holyoke, Mass., died February 18. For nine years he was with the American Saw Company, Trenton, N. J., and for 23 years in the belting business.

In the latter line he was first with Charles A. Schieren & Co., New York, and afterward with the Page Belting Company, Concord, N. H., as manager of its Boston office, and later of the Middle States department at New York. Since 1902 until recently he had been with the Holyoke Belting Company. He leaves a widow and two sons.

GEORGE H. FISHER of Ironton, Ohio, died at Columbus, Ohio, January 21, in his seventy-sixth year, while endeavoring to reach his home at Ironton after having been taken suddenly ill at New York. He was born at Tredegar, Wales, and began his career as a shipping clerk at the age of 15 years. He came to this country in May, 1849, locating at Pittsburgh, where he was connected with its rolling mills. In 1859 he removed to Ironton. Thereafter he was superintendent of various rolling mills at Ironton and elsewhere. In 1883 he built the Kelly Nail Works at Ironton for the owners and later he was superintendent of the Eagle Mill in that city.

WILLIAM EDEN, a rolling mill pioneer in the Schuylkill Valley, died at Pottsville, Pa., February 18, aged 76 years.

J. S. UNDERHILL, who was a prominent manufacturer of boilers before and during the Civil War, died in Williamsburg, Brooklyn, N. Y., February 22, aged 86 years. He built the ironclad Keokuk and the monitor Modoc.

WILLIAM PERCIVAL DE WITT, secretary and treasurer of the New York Wire Cloth Company, merchant and manufacturer and clubman, died suddenly February 18, aged 40 years. He was a graduate of Stevens Institute and a member of the New York Yacht Club, the New York Athletic Club, the Players' Club and the Hardware Club.

## PERSONAL.

After five years of active service in building and equipping the plant of the Central Radiator Company, Landsdale, Pa., Robert K. Story has resigned his position as general manager, taking effect March 1, to enjoy a period of long needed rest.

W. W. Holt, who for a number of years has been general yardmaster of the New York Central & Hudson River Railroad at West Albany, has become connected with the Quincy, Manchester, Sargent Company, with his headquarters at the New York offices in the West Street Building.

Edward Busch, general manager of the National Automatic Tool Company, Dayton, Ohio, is now in New York on business.

C. B. Williamson, at present with the Becker-Brainerd Milling Machine Company, Hyde Park, Mass., will enter the employ of the Vandyck-Churchill Company, 8 Day street, New York, March 1, as a salesman.

George W. Bragg, who has for some years been cashier for the Bon Air Coal & Iron Company, Allen's Creek, Tenn., has been appointed superintendent to succeed H. T. De Bardeleben.

H. R. Southworth, formerly circulation manager of the Binghamton Press, Binghamton, N. Y., has become manager of the publicity department for the General Fireproofing Company, Youngstown, Ohio.

William Coghlin, for the past nine years prominently identified with the National Supply Company, Toledo, Ohio, has severed his connection with that company and entered the employ of the Patterson Tool & Supply Company, Dayton, Ohio, as traveling salesman in Ohio.

Thomas H. McGechin has been appointed Eastern sales manager of the United States Cast Iron Pipe & Foundry Company, with offices at 71 Broadway, New York.

Charles F. Rand, New York, president of the Spanish-American Iron Company, is in Cuba at the company's mines.

For the past year or two the Birdsboro Steel Foundry & Machine Company, Birdsboro, Pa., has been making

a specialty of casting open hearth steel pipe fittings suitable for high pressure superheated steam. These have been so well received and the volume of business has increased to such an extent that a special machine has been designed and built for finishing them. This, known as a trifacing machine, is capable of boring, facing and truing up a tee or ell fitting at one setting. The machine weighs about 50,000 lb., is equipped with a 30-hp. motor to drive the three heads and will handle fittings of from 6 to 30 in. in diameter in a third of the time that was formerly required.

## Proposed New Standards for Mining Engineers.

The Institution of Mining and Metallurgy has sent out recently to its members from its headquarters, Salisbury House, London, E. C., the recommendations of the weights and measures and the mesh sectional committees of the Institution's Central Standardization Committee. These are to be balloted on by the members, preliminary to final action by the council. The important part of the report of the Mesh Sectional Committee is the following, designated as the "I. M. M. Standard Laboratory Screens."

Mesh or apertures per linear inch.	Diameter of wire. Inch.	Aperture. Inch.	Screening area. Per cent.
5.....	0.1	0.1	25.00
8.....	0.063	0.062	24.60
10.....	0.05	0.05	25.00
12.....	0.0417	0.0416	24.92
16.....	0.0313	0.0312	24.92
20.....	0.025	0.025	25.00
25.....	0.02	0.02	25.00
30.....	0.0167	0.0166	24.80
35.....	0.0143	0.0142	24.70
40.....	0.0125	0.0125	25.00
50.....	0.01	0.01	25.00
60.....	0.0083	0.0083	24.80
70.....	0.0071	0.0071	24.70
80.....	0.0063	0.0062	24.60
100.....	0.005	0.005	25.00
150.....	0.0033	0.0033	24.50
200.....	0.0025	0.0025	25.00

The recommendations of the two sectional committees are as follows:

### WEIGHTS AND MEASURES.

1. That the word "ton" shall represent a weight of 2000 lb. avoirdupois (29,166.6 oz. troy); that the use of the terms "cwt." and "grs." be abandoned; and that fractions of a ton be expressed either in pounds or in decimals of a ton.
2. That the "miner's inch" be understood to mean a flow of 1.5 cu. ft. of water per minute.
3. That the word "gallon" be understood to mean the Imperial gallon of 10 lb.
4. That all temperatures be expressed in degrees Centigrade.
5. That gold and silver returns be expressed in terms of fine gold and silver, and not as "bullion."
6. That gold contents of ores, &c., be expressed in money values as well as in weights; and in this connection the standard value to be taken at 85 shillings, or \$20.67 U. S. currency, per troy ounce fine gold.

### MESH.

1. The adoption of the "I. M. M. Standard Laboratory Screens" as recommended in the committee's report.
2. That material coarser than 150 mesh be described as "Sand"—coarse or fine.
3. That material passing 150 mesh, but settling against a given rising current of water, or settling in — seconds in a — inch column of still water, be described as "Meal." Do you suggest any method of making the sub-division of material finer than 150 mesh; and do you suggest any alternative term for "Meal"?
4. That material settling more slowly than suggested in 3 be described as "slimes."

Concerning the metric system the members are asked the following: "Do you consider the general adoption of the metric system of weights and measures to be feasible in mining and metallurgical work, or would this in your opinion lead to undue dislocation?"

Southern railroads have requested permission from the Interstate Commerce Commission to postpone for another 30 days the intended advance of 25 cents per ton in the freight rate on pig iron and cast iron pipe, making the advance effective April 2, instead of March 3. The request will probably be granted.



## NEWS OF THE WORKS.

## Iron and Steel.

The Atikokan Iron Company, Limited, Port Arthur, Ontario, which has just completed a new blast furnace at Port Arthur, with coking ovens, ore roasting plant and coal and ore dock, expects to blow the furnace in at the opening of navigation, about the middle of April. The directors of the company are Wm. McKenzie, D. D. Mann, Z. A. Lash, Hugh Sutherland, J. W. DeC. O'Grady, A. Stanford White, R. M. Hunter and J. C. Hunter. D. D. Mann is president; J. C. Hunter, vice-president and manager; Hugh Sutherland, treasurer, and R. M. Hunter, secretary.

Thomas S. Bellah has been appointed receiver for the Seidel & Hastings Company, Wilmington, Del., plate iron manufacturer. The assets are said to be \$75,000 and liabilities \$83,000.

The Morgan Spring Company has installed 39 wire nail machines in its plant at Youngstown, Ohio, which are in operation, and the company is now making upward of 600 kegs of wire nails per day. The company also has in operation at Youngstown a rod mill, with a capacity of 200 tons a day, and a wire drawing department, with a capacity of 100 tons per day.

The plant of the Wilkes Rolling Mill Company at Sharon, Pa., which was closed down for some time, is again in operation, giving employment to about 100 men. The company manufactures muck bar, bar iron and iron and steel sheets.

The first department of the turnbuckle plant of the Republic Iron & Steel Company, which was removed from Brazil to Muncie, Ind., has been put in operation with 100 employees. Other departments will be opened as rapidly as possible. The turnbuckle plant was consolidated with the company's nut and bolt works at Muncie.

The Goshen Iron Company has been incorporated to take over a lease from the receiver of the Chapman Iron, Coal & Coke Company to A. J. Moxham, which covers properties in Rockbridge, Augusta and Allegheny counties, Va., and Fayette County, W. Va. Information can be obtained from Townsend, Avery & Button, 7 Nassau street.

At a recent meeting of the stockholders of the Berger Mfg. Company, Canton, Ohio, it was voted to increase the capital stock from \$1,000,000 to \$1,500,000. President E. A. Langenbach states that this places the company in a better position to make extensions necessary to a growing business. The stock will be sold from time to time as the directors see fit.

The Linton Rolling Mill Company, Terre Haute, Ind., whose principal production will be light steel rails, ranging from 12 to 40 lb., splices and spikes, and whose plant is located at Linton, Ind., on the Illinois Central and Southern Indiana railroads, has just started up, employing a force of 200 men. The new company is headed by Terre Haute capitalists. Joseph Freeman is president; W. J. Hamilton, vice-president; J. R. Finkelstein, secretary and general manager, and Joseph Moss, treasurer.

The Ashland Iron & Steel Company, Ashland, Wis., manufacturer of Lake Superior pig iron, together with by-products of wood alcohol and acetate of lime, has recently acquired a large additional tract of timber land, aggregating 50,000 acres. Twenty new charcoal kilns will be built and when completed will use about 100,000 cords of wood a year. The furnace at Ashland is one of the largest charcoal furnaces in that region, and perhaps in the country, and together with that of the Michigan Iron Company, Newberry, Mich., and the Manistique Iron Company, Manistique, Mich., form a group which produces a large proportion of the entire charcoal iron product. The three companies, of which Jos. H. Berry, Detroit, Mich., is president, are controlled by the same interests.

The plant of the Fort Worth Iron & Steel Company, which was burned at Fort Worth, Texas, a few days ago, will be rebuilt at once. The loss from the fire amounted to about \$100,000. The plant was engaged in the manufacture of bolts, spikes, nuts, washers and air brakes.

## General Machinery.

The Wytheville Iron Works, Wytheville, Va., recently incorporated, is buying the equipment for its new plant, which is now being erected on a 3½-acre site on the Norfolk & Western Railroad. G. S. Bruce is president; E. Lee Trinkle, vice-president; R. L. Pierce, treasurer; Edward Ewald, secretary, and H. C. Clayton, superintendent.

John S. Sell and Lucian Clawson have purchased the property and stock of the Atlantic Steel Tool Company, Greensburg, Pa., consisting of a foundry, 6 acres of land and 800 ft. of railroad siding. A new company will be formed to operate the plant as soon as possible.

The Western Allegheny Railroad, Greenville, Pa., is to build a new engine house and small repair shop, the location for which has not been selected.

Through a misunderstanding the announcement was made in our last issue that the Railways Appliances Company is offering for sale the plant and business of the Pedrick & Ayer Company, Plainfield, N. J. The fact is that W. D. Sargent, 114 Liberty street, New York, offers for sale simply and only

the Pedrick & Ayer Company, with its line of railroad shop tools, patterns, patents, special tools, &c.

The United Spring Company, recently incorporated at Buffalo, N. Y., to manufacture a newly patented geometric ratio resistance spring for automobiles, auto trucks and other vehicles, the invention of F. George Winkler of that city, has determined upon the location of its plant and will soon be in readiness to order a small amount of equipment, consisting of forges, bulldozer, bending machines, &c. Mr. Winkler is president and manager.

The Winnfield Iron Works, Winnfield, La., has recently enlarged its plant by additions to the machine shop and boiler shop. More ground was also secured, as a step preparatory to making an addition to the foundry department and the putting in of an additional and larger cupola, which will be installed in the near future.

The Murray Machine Company, Des Moines, Iowa, has been recently incorporated for the manufacture of a line of tools of which the Little Giant pipe threader is at present the most important. Thomas Murray is president; F. B. Alldredge, vice-president, and Dallas E. Alldredge, secretary and treasurer.

The Model Machinery Company, Little Rock, Ark., has been organized to take over the business lately conducted at 223 Centre street. Joseph Berg is president and John J. Baskin secretary and treasurer. The company will engage in the manufacture and repair of machinery, and the shop will be considerably enlarged.

Several erroneous reports have appeared in the papers concerning the fire at the Ford City plant of the Fischer Foundry & Machine Company, Pittsburgh, Pa. The loss by fire was not nearly as large as was reported, and the company intends to rebuild the part of its plant which was destroyed at the earliest date possible.

## Power Plant Equipment.

J. J. Finnigan & Co., boiler makers, Atlanta, Ga., will rebuild the part of their plant which was recently destroyed by fire and are overhauling the tools which were damaged.

The American Boiler Flue Cleaner Company, 508 Broad street, Bank Building, Trenton, N. J., has been organized to place its flue cleaners on the market. For the present they will be made in one of the largest foundry and machine shops in Trenton. Jacob Gaskill is president, A. V. Robinson secretary, and W. R. Gaskill treasurer.

The Epping-Carpenter Company, Pittsburgh, has acquired through the Real Estate Trust Company of that city 40,000 sq. ft. of ground adjoining its present plant. The property purchased measures 100 x 400 ft., at the northwest corner of the Allegheny Valley Railroad and Forty-third street, and was formerly occupied by S. B. Rheam & Co., scrap iron dealers. The purchase gives the Epping-Carpenter Company control of all property from Forty-first street to Forty-third street, between the Allegheny Valley and the Pittsburgh Junction railroads, affording the best of shipping facilities. The large increase in business of the company has made it necessary for it to greatly add to its equipment. It has just had erected and put in operation a new foundry, 115 x 175 ft., equipped with a cupola, molding machines, brass foundry, core ovens, and served by a 25-ton electric traveling crane. A new pattern storage house, 60 x 85 ft., one story, with gallery, has also been erected, while the pattern making room has been enlarged to occupy the space formerly taken up by the patterns. A new engine and boiler room and backsmith shop, as an annex to the machine shop, has also been built. On the property just purchased the company will immediately have built a two-story steel addition 72 x 104 ft., which is to be used for an erecting shop, and contract for which has been let to the Fort Pitt Bridge Works, Pittsburgh. The present erecting shop will be used as a machine shop. When all these improvements have been completed the company will have one of the largest and best equipped plants in this country devoted to the manufacture of pumps, pumping and condensing apparatus. A contract was recently closed for a 4,000,000-gal. triple expansion condensing engine for Meadville, Pa.

The Wallis Stoker & Mfg. Company, Terre Haute, Ind., has increased its capital stock from \$10,000 to \$100,000. Thomas Gray is president and George M. Crane secretary.

The Whitlock Coil Pipe Company, Hartford, Conn., manufacturer of feed water heaters, condensers, coils and bends, has filed with the Connecticut Secretary of State a certificate of increase in capital stock from \$200,000 to \$400,000.

The Mecklenberg Gas & Gasoline Engine Company has been incorporated at South Bend, Ind., with \$10,000 capital stock, to manufacture engines. The directors are Alfred C. Mecklenberg, Ralph A. Fink, Henry A. Fink and Hilton Hammond.

The Grand Rapids Hydraulic Company, Grand Rapids, Mich., will replace its power plant, which was recently burned, with a reinforced concrete building, the construction of which will not be begun until summer. Very little machinery was destroyed by the fire, and the company will not be in the market for any new equipment, although it may possibly require some coal handling machinery.

## Foundries.

The Indiana Foundry & Machine Company, South Bend, Ind., which recently suffered a loss by fire that destroyed the greater

part of its foundry buildings, is operating about one-half the usual force in the unburned portion, and contracts are being let for reconstruction.

The Sioux City Foundry & Mfg. Company, Sioux City, Iowa, is about to begin the construction of a new plant for the accommodation of structural steel and boiler work. The new building will be 90 x 100 ft., situated on a site of 3 acres. It is the purpose also to move the foundry from its present location to this site in the near future.

Tate, Jones & Co., Incorporated, Empire Building, Pittsburgh, has received an order for 50 oil burning furnaces for the new plant of the Standard Steel Car Company at Hammond, Ind. These furnaces will be installed at once and are expected to be ready for operation in May. The oil burning equipment for one 15-ton open hearth furnace installed by this company at the plant of the National Foundry Company, Erie, Pa., was started last week.

A receiver has been appointed for the Pittsburgh Automatic Machine Company, Ellwood City, Pa. It was the intention of the company to manufacture malleable castings for cash registers, but its plant was never operated.

The plant of the Hercules Pipe Foundry Company, Anniston, Ala., is to be put into operation and a sum amounting to perhaps \$25,000 expended in additions and improvements.

A charter has been granted to the Wm. Oliver Mfg. Company, Knoxville, Tenn., capitalized at \$1,000,000. The incorporators are W. J. Oliver, who made the lowest bid on the Canal contract; E. G. Oats, Alex. McMillan, J. T. Gaut and other citizens of Knoxville. The company, of which Mr. Oliver is at the head, has been engaged in foundry work, the making of mining, milling and road implements, but the scope of work is now enlarged, and under its new charter the company may also manufacture railroad cars, railroad supplies, &c.

The Detroit Stoker & Foundry Company, Detroit, Mich., has recently increased its capital stock from \$110,000 to \$150,000, in order to have a larger working capital with which to extend its operations.

The National Radiator Company is in the market for cupola blower, drill press and some line shafting and pulleys for its new foundry at Lebanon, Ind. The remainder of the equipment for that place has been purchased. The matter is in the hands of W. S. Ritchie, secretary, whose headquarters are at Lebanon.

#### Bridges and Buildings.

The Inter-Mountain Bridge & Construction Company, Tecumseh, Neb., manufacturer of concrete, steel and pile bridges, has been recently incorporated with G. A. Dunlap, formerly of the Ward Bridge Company, as manager. The company will also establish an office at Ontario, Ore.

Birch & Birch, general machinists, Crawfordsville, Ind., are in the market for steel roof trusses, suitable for a machine shop, and desire catalogues and information from firms equipped to furnish such construction work.

#### Motors and Small Engines.

The Willet Engine & Carburetor Company has been incorporated at Buffalo, N. Y., with a capital of \$50,000, and will manufacture engines and carburetors for auto-truck, automobile and marine use. Among the incorporators are J. G. Willet, Edward Michael, C. L. Ingham and E. C. Lufkin, general manager of the Snow Steam Pump Company, Buffalo.

The Safety Shredder Company, Newcastle, Ind., has been reorganized and has begun the manufacture of gas engines and motors in connection with its other products.

#### Fires.

The wire drawing plant of the Wire & Telephone Company of America, at Rome, N. Y., was destroyed by fire February 23, the loss being about \$50,000.

The machine shop of R. W. Gormly & Co. and the plant of the Troy Spring Works, Troy, N. Y., were destroyed by fire February 24. The loss is estimated at about \$15,000.

The electric plant of I. N. Lovenheim, Utica, N. Y., was burned February 22 with a loss of about \$10,000.

The plant of the Alpena Portland Cement Company, Alpena, Mich., was almost totally destroyed by fire February 19. The loss is said to be about \$200,000, as a greater part of the machinery was destroyed.

The bloom works at Spring City, Pa., owned and operated by E. B. Leaf & Co., Philadelphia, Pa., were burned February 21, the loss being about \$5000.

The building at Eleventh and Greenwich streets, New York, partly occupied by the Manhattan Screw & Stamping Company, was burned February 22. The Manhattan Company's loss is estimated at \$50,000.

The plant of the Parker-Hensell Engineering Company, Brunswick, Ga., was destroyed by fire February 21, the loss being about \$50,000. The large marine machine shops and foundry were burned.

The plant of the Rockaway Rolling Mill, Rockaway, N. J., was destroyed by fire February 21.

The plant of the Acker Process Company, Niagara Falls, N. Y., was destroyed by fire February 25, the loss being about \$700,000.

The municipal pumping station at Geneva, Ohio, was burned February 22. The loss is placed at \$7000.

#### Hardware.

The Globe Mfg. Company, Taunton, Mass., manufacturer of wire nails, has been incorporated in Massachusetts with capital stock of \$20,000. J. Alfred Welch is president and treasurer, M. J. Lee clerk, the two with J. H. Dobbs constituting the Board of Directors. The company has recently purchased some of the wire nail machines of the Taunton Rivet Company, Taunton, and has placed orders for several more. The company has established a reputation for its line of small wire nails, including brass and steel escutcheon pins, and also wire shoe nails, claiming to be the pioneer manufacturer of a wire shoe nail for heel manufacturers. The business was established in February, 1901, with six wire nail machines. At the present time over 60 machines are being operated, manufacturing over 100 styles of nails for special purposes. It is the intention of the company to enlarge its capacity about one-half.

The Scranton Forging Company, Scranton, Pa., states that its line of special forgings, made exclusively to designs furnished to the company by its customers, is continually increasing. This department of the business has developed very rapidly during the past few years.

Manning, Bowman & Co., Meriden, Conn., manufacturers of silver and nickel plated ware, chafing dishes, bread-mixer makers, coffee percolators, &c., are planning to make important additions to their works which will increase the output of the present large plant over 50 per cent.

The American Cutlery Company, Chicago, Ill., will erect a new six-story factory, 42 x 150 ft., on the site of the one which was recently destroyed by fire. The building, which is to be located at 169 to 197 Mather street, Chicago, will be of reinforced concrete construction and will cost \$150,000.

The Waugh Machine Company, Gahanna, Franklin County, Ohio, has recently been incorporated, with a capital stock of \$12,000, and will engage in the manufacture of a mortise machine. The incorporators are Johnston S. Waugh, George F. Ebner, Leo Miller, David L. Stygler and Peter Swickard.

The Glen Mfg. Company, Ellwood City, Pa., manufacturer of Hartman steel picket fences, ornamental iron fencing and Glen steel folding mats, is preparing a new design of wire fencing which it expects to put on the market within a short time.

#### Miscellaneous.

The Motor Parts Company, 25 West Forty-second street, New York, has been incorporated with a capital stock of \$100,000 to supply parts and accessories to manufacturers of automobiles and to buy these materials for a number of automobile companies who are interested in the new organization. It will be a sort of clearing house between the maker of the parts and the builder of the automobile, and will handle only the very best products after these have been tested in the company's laboratory at Yonkers, N. Y. W. W. Burke will be president and general manager upon the acceptance of his resignation as manager of the New York branch of the Electric Vehicle Company.

The business hitherto carried on by John A. Caldwell at 42 Broadway, New York, in fuel saving devices, including the widely known Ados C. O. 2 recorder, has been merged into the Sargo Fuel Saving & Engineering Company, which has been incorporated with a capital stock of \$100,000 and has engaged offices in the West Street Building. Workshops and temporary offices have been located at 81 to 85 Washington street. The company will take over the American interests of Sanders, Rehders & Co., Limited, fuel economy specialists, of London and Manchester, England, whose various apparatus it will manufacture. Mr. Sanders, chairman of the English firm, is president and Mr. Caldwell general manager. Selling agencies will be established throughout the United States at an early date.

The Lackawanna Steel Company has completed the organization of the new company which is to operate the coal and coke properties recently purchased from the James W. Ellsworth Coal Company. The new concern is to be known as the Ellsworth Collieries Company and has a capital stock of \$1,000,000 and a bonded debt of \$8,000,000.

The Pittsburgh Automatic Vise & Tool Company, Wabash Building, Pittsburgh, has received a contract from the United States Government for 24 Pittsburgh vises, 6-in. jaws, for shipment to the Panama Canal.

The Duluth Corrugating & Roofing Company, Duluth, Minn., has increased its capital stock from \$50,000 to \$100,000, instead of from \$5000 to \$10,000, as was mistakenly stated in an item recently published in these columns.

The Automatic Train Control Company has been incorporated at Indianapolis, Ind., with \$12,000 capital stock, to make a device for controlling automatically locomotives and trains. The directors are John E. Stieglmeyer, Carey L. Smith, Orion V. Beckwith, Wm. E. Hayward and Chas. H. Pierce. The device consists of a steel shoe attached to the engine trucks and the trucks of the last car in a train and a series of third rails in the roadbed which are electrically connected. The purpose is to stop a train by trainmen or telegraph operators in case of accident or threatened collision or wreck. Carey L. Smith is secretary.



## The Iron and Metal Trades

So far as the Finished branches of the Iron and Steel industry are concerned business is developing in a very satisfactory manner. The mills are full of work, and specifications are coming in steadily. During the first three weeks of the current month the new orders for the United States Steel Corporation have come in at a daily rate which is practically equivalent to the full capacity of the plants. In other words, the corporation, even in a month which is usually quiet, as February is, has not been gaining on its extraordinary accumulation of orders. Shipments during the first half of February were for obvious reasons not quite up to the output of the mills.

The sale of 50,000 tons of Steel Rails to the Manchurian road, to which we alluded some weeks since, has been followed by contracts for bridge work amounting to 8600 tons. It is estimated that the February tonnage of the American Bridge Company will aggregate 40,000 tons. This includes 3200 tons for the new shops of the Grand Trunk Western and 7500 tons for the Waverly warehouse of the Steel Corporation. Among the contracts pending are 6500 tons for the Chicago Corn Exchange Bank and 2000 tons additional for the New Haven road.

In the Steel market the most interesting development is the purchase by the leading interest of what tonnage was offered in the market by a new open hearth Steel plant in the Buffalo District, about to begin production.

The pressure in the Wire and Tube trades for an advance in prices has been persistent recently. It is thoroughly understood, however, that the most powerful interests are adverse to any raising of prices.

Some disquieting reports come from Pittsburgh, with reference to the attitude of the puddlers, who may secede from the Amalgamated Association and make demands independently. The Eastern Bar Iron markets are strong and makers are now quoting on the basis of their own mills, rather than on the Pittsburgh base.

The Pig Iron markets are featureless. The spot markets are controlled entirely by local and temporary conditions, with a tendency toward a lowering of premiums. Middlesbrough Iron has been offered in cargo lots at \$20.50, at tidewater, but for the future business is confined to purchases made for export work. For forward delivery of Foundry Irons negotiations are pending East and South, but buyers and sellers seem too far apart. Prompt Basic is scarce, although the mills have a good deal of tonnage due to them on old contracts. A leading Southern producer sold in the St. Louis District one lot of 18,000 tons in January and one lot of 15,000 tons in February, of Basic Pig, for delivery during the second half of the year. The Iron netted \$19 at Birmingham.

## A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	Feb. 27, 1907.	Feb. 20, 1907.	Jan. 23, 1907.	Feb. 28, 1906.
<b>PIG IRON, Per Gross Ton:</b>				
Foundry No. 2, Standard, Philadelphia .....	\$25.50	\$25.50	\$26.50	\$18.50
Foundry No. 2, Southern, Cincinnati .....	26.00	26.00	26.00	16.75
Foundry No. 2, Local, Chicago ..	25.50	25.50	25.50	19.00
Bessemer, Pittsburgh .....	22.85	22.85	22.85	18.10
Gray Forge, Pittsburgh .....	21.85	21.85	22.25	16.85
Lake Superior Charcoal, Chicago	27.00	27.00	27.00	20.00

<b>BILLETS, &amp;c., Per Gross Ton:</b>				
Bessemer Billets, Pittsburgh ..	29.50	29.50	29.50	27.00
Forging Billets, Pittsburgh .....	36.00	36.00	36.50	32.00
Open Hearth Billets, Phila. ....	33.00	33.00	33.00	29.00
Wire Rods, Pittsburgh .....	37.00	37.00	37.00	34.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00

<b>OLD MATERIAL, Per Gross Ton:</b>				
Steel Rails, Melting, Chicago ..	18.00	18.00	18.00	15.00
Steel Rails, Melting, Phila. ....	19.50	19.50	19.00	16.50
Iron Rails, Chicago .....	25.00	25.00	27.00	21.50
Iron Rails, Philadelphia .....	27.00	27.50	27.50	22.00
Car Wheels, Chicago .....	23.00	23.00	25.00	19.00
Car Wheels, Philadelphia .....	23.25	23.25	23.00	18.75
Heavy Steel Scrap, Pittsburgh ..	18.00	18.00	18.50	14.75
Heavy Steel Scrap, Chicago .....	15.50	15.50	17.00	13.00
Heavy Steel Scrap, Philadelphia	19.00	19.00	18.00	16.00

<b>FINISHED IRON AND STEEL, Per Pound:</b>				
Refined Iron Bars, Philadelphia ..	1.93½	1.93½	1.93½	1.73½
Common Iron Bars, Chicago .....	1.81½	1.81½	1.81½	1.75
Common Iron Bars, Pittsburgh ..	1.80	1.80	1.80	1.85
Steel Bars, Tidewater, New York ..	1.74½	1.74½	1.74½	1.64½
Steel Bars, Pittsburgh .....	1.60	1.60	1.60	1.50
Tank Plates, Tidewater, New York ..	1.84½	1.84½	1.84½	1.74½
Tank Plates, Pittsburgh .....	1.70	1.70	1.70	1.60
Beams, Tidewater, New York ..	1.84½	1.84½	1.84½	1.84½
Beams, Pittsburgh .....	1.70	1.70	1.70	1.70
Angles, Tidewater, New York ..	1.84½	1.84½	1.84½	1.84½
Angles, Pittsburgh .....	1.70	1.70	1.70	1.70
Skelp, Grooved Steel, Pittsburgh ..	1.85	1.85	1.65	1.57½
Skelp, Sheared Steel, Pittsburgh ..	1.95	1.95	1.70	1.60

<b>SHEETS, NAILS AND WIRE, Per Pound:</b>				
Sheets, No. 27, Pittsburgh .....	2.50	2.50	2.50	2.30
Wire Nails, Pittsburgh .....	2.00	2.00	2.00	1.85
Cut Nails, Pittsburgh .....	2.05	2.05	2.05	1.80
Barb Wire, Galv., Pittsburgh ..	2.45	2.45	2.45	2.30

<b>METALS, Per Pound:</b>				
Lake Copper, New York .....	25.12½	25.12½	24.75	18.12½
Spelter, New York .....	7.00	7.00	7.00	6.00
Spelter, St. Louis .....	6.77½	6.80	6.75	5.90
Lead, New York .....	6.35	6.30	6.30	5.35
Lead, St. Louis .....	6.10	6.10	6.12½	5.27½
Tin, New York .....	41.90	41.85	42.00	36.25
Antimony, Hallett, New York ..	24.50	25.00	24.50	15.25
Nickel, New York .....	45.00	45.00	45.00	40.00
Tin Plate, 100 lb., New York ..	\$4.09	\$4.09	\$4.09	\$3.69

## Chicago.

FISHER BUILDING, February 25, 1907.

The Pig Iron situation has seemingly resolved itself into a game of chess between seller and buyer, with each side leisurely waiting for the other to move—and final results largely depend on who moves first. The market has not for months been as inactive as it is at the present time, there being practically no buying for distant delivery and a notable absence of inquiries indicating a purpose to buy at prices asked to-day. This condition cannot be sustained for an indefinite period, and must result in the near future in concessions on one side or the other. Consumers must either pay the prices asked or the furnace interests must recede from their present firm position; and a positive movement in one direction will not in all probability be long delayed. Rumors are plentiful of weakening here and there, but no specific transactions of importance have come to light that justify a general quotation lower than \$18 Birmingham, for last half. Most of the large Southern furnaces are holding firm at or above this figure, one important interest still asking \$19. But the absence of business proves that these prices are, at the present time, regarded as prohibitive by buyers. Under these circumstances, therefore, quotations are merely nominal. All through the line of Finished Products the demand continues in uninterrupted volume. Mills are overrun with Plate orders, and activity in Pipe is likewise taxing the capacity of works to the utmost. In no line, in fact, is there any dearth of orders or specifications, but there seems withal no disposition to crowd prices to a higher level, and no important changes in this respect are noted.

**Pig Iron.**—In no previous week this year has the Pig Iron market been as quiet and featureless as in the week just

passed. Buying for second half has been practically suspended, and the little business that is moving is closely confined to spot and nearby deliveries. The only consumers now in the market are apparently those whose necessities compel purchases to keep their plants running. The hoped for relief from shipments of stocks tied up in Southern furnace yards has not been afforded, nor are the reports of progress made by the railroads in their efforts to relieve the situation at all encouraging to those depending on these deliveries for supplies. Under the circumstances holders of spot iron are in position to maintain prices, which vary according to the viewpoint of the seller. Recent sales of small lots are noted at \$23 and \$24, Birmingham, for No. 2, and \$22.50 for April delivery. With practically all the Southern furnaces holding firm at \$18.50, Birmingham, for second half delivery, it is probable that the present state of inactivity will be maintained until one side or the other weakens. It is believed that in spite of the vigorous protests being made, the new freight rate from the South will go into effect as scheduled on March 3. The following quotations are for March and April shipments, f.o.b. Chicago, including the 45c. advance in freight rate on Southern Irons, effective March 3:

Lake Superior Charcoal.....	\$27.00 to \$27.50
Northern Coke Foundry, No. 1.....	26.00 to 26.50
Northern Coke Foundry, No. 2.....	25.50 to 26.00
Northern Coke Foundry, No. 3.....	25.00 to 25.50
Northern Scotch, No. 1.....	26.00 to 27.00
Ohio Strong Softeners, No. 1.....	26.00 to 26.50
Ohio Strong Softeners, No. 2.....	25.50 to 26.00
Southern Coke, No. 1.....	27.35 to 27.85
Southern Coke, No. 2.....	26.85 to 27.35
Southern Coke, No. 3.....	26.35 to 26.85
Southern Coke, No. 4.....	25.85 to 26.35
Southern Coke, No. 1 Soft.....	27.35 to 27.85
Southern Coke, No. 2 Soft.....	26.85 to 27.35
Southern Gray Forge.....	22.35 to 22.85
Southern Mottled.....	22.35 to 22.85
Malleable Bessemer.....	26.00 to 26.50
Standard Bessemer.....	25.30 to 25.80
Jackson Co. and Kentucky Silvery, 6 %	30.30 to 30.80
Jackson Co. and Kentucky Silvery, 8 %	32.30 to 32.80
Jackson Co. and Kentucky Silvery, 10 %	34.30 to 34.80

**Metals.**—The entire list of Metals remains unchanged both as to price and demand. The same degree of scarcity heretofore observed in Casting and Lake Copper obtains. We quote as follows: Casting Copper, 26½c. to 27¼c.; Lake, 27c. to 27½c., in car lots for prompt shipment; small lots, ¼c. to ¾c. higher; Pig Tin, car lots, 44½c.; small lots, 45c.; Lead, Desilverized, 6.50c. to 6.60c., for 50-ton lots; Corroding, 7.25c. to 7.35c., for 50-ton lots; on car lots, 2¼c. per 100 lb. higher; Spelter, 6.90c.; Cookson's Antimony, 28½c., and other grades, 26½c. to 27½c.; Sheet Zinc is \$8.50 list, f.o.b. La Salle, in car lots of 600-lb. casks. On Old Metals we quote: Copper Wire, 21½c.; Heavy Copper, 20¼c.; Copper Bottoms, 19½c.; Copper Clips, 20c.; Red Brass, 19½c.; Red Brass Borings, 16½c.; Yellow Brass, 16c.; Yellow Brass Borings, 14½c.; Light Brass, 13c.; Lead Pipe, 5.50c.; Tea Lead, 5c.; Zinc, 5c.; Pewter, No. 1, 28c.; Tin Foil, 34c.; Block Tin Pipe, 27½c.

**Billets and Rods.**—Rods are, if anything, more scarce, and market transactions are restricted to small and unimportant lots. While no change is made in the quotations of \$36 to \$37, nominally held, actual sales of such small lots as are moving probably command \$1 or \$2 a ton above quotations. Forging Billets are subject to practically the same conditions and are still quoted at \$38 and upward, according to size.

**Rails and Track Supplies.**—A little more activity is noticed in Rails of standard sections, and Light Rails continue in good demand. Western mills are well booked up on Light Rails, and the principal producers are not in position to make prompt deliveries. A fairly good run of orders is noted in Track Supplies. We quote as follows: Angle Bars, accompanying Rail orders, 1907 delivery, 1.65c.; car lots, 1.90c. to 1.95c.; Spikes, 2.40c. to 2.50c., according to delivery; Track Bolts, 2.75c. to 2.85c., base, Square Nuts, and 2.90c. to 3c., base, Hexagon Nuts. The store prices on Track Supplies range from 0.15c. to 0.20c. above mill prices. Light Rails, 30 to 45 lb. sections, \$35; 25-lb., \$36; 20-lb., \$37; 16-lb., \$38; 12-lb., \$39, f.o.b. mill. Standard Sections, \$28, f.o.b. mill, full freight to destination.

**Structural Material.**—Notwithstanding the failure of some large railroad projects to develop in proportions earlier anticipated, the Structural mills are well supplied with specifications and are reported to be running full. There is reason to believe that general operations in construction work will, under better weather conditions, soon become more active, and the aggregate of this tonnage, it is expected, will be large enough to keep the mills reasonably busy. Prices from the store are quoted without change, at 2.05c. to 2.10c., and mill prices are as follows: Beams and Channels, 3 to 15 in., inclusive, 1.86½c.; Angles, 3 to 6 in., ¼-in. and heavier, 1.86½c.; larger than 6 in. on one or both legs, 1.96½c.; Beams, larger than 15 in., 1.96½c.; Zees, 3 in. and over, 1.86½c.; Tees, 3 in. and over, 1.91½c., in addition to the usual extras for cutting to extra lengths, punching, coping, bending and other shop work.

**Plates.**—There is apparently no cessation in the unusually great demand for Plates. The leading mills have

specifications now in hand that fill their rolling schedules up to June 1 at least. We quote for future deliveries, as follows: Tank Plate, ¼-in. and heavier, wider than 6¼ and up to 100 in. wide, inclusive, car lots, Chicago, 1.86½c. to 2.06½c.; 3-16 in., 1.96½c. to 2.16½c.; Nos. 7 and 8 gauge, 2.01½c. to 2.21½c.; No. 9, 2.11½c. to 2.31½c.; Flange quality, in widths up to 100 in., 1.96½c. to 2.06½c., base, for ¼-in. and heavier, with the same advance for lighter weights; Sketch Plates, Tank quality, 1.96½c. to 2.16½c.; Flange quality, 2.06½c. Store prices on Plates are as follows: Tank Plate, ¼-in. and heavier, up to 72 in. wide, 2.20c. to 2.30c.; from 72 to 96 in. wide, 2.30c. to 2.40c.; 3-16 in., up to 60 in. wide, 2.30c. to 2.40c.; 72 in. wide, 2.55c. to 2.65c.; No. 8, up to 60 in. wide, 2.35c. to 2.45c.; Flange and Head quality, 0.25c. extra.

**Sheets.**—A humdrum sameness exists in the unchanged conditions of full mill order books, delayed shipment of orders and urgent demand for deliveries from buyers. It will doubtless be weeks before mills can get cleared up to a point where shipments can be made with ordinary promptness. Unless there is a cessation in the present volume of business the time will be indefinitely delayed. We quote, as follows: Blue Annealed, No. 10, 2.01½c.; No. 12, 2.06½c.; No. 14, 2.11½c.; No. 16, 2.21½c.; Box Annealed, Nos. 17 to 21, 2.51½c.; Nos. 22 to 24, 2.56½c.; Nos. 25 and 26, 2.61½c.; No. 27, 2.66½c.; No. 28, 2.76½c.; No. 29, 2.86½c.; No. 30, 2.96½c.; Galvanized Sheets, Nos. 10 to 14, 2.81½c.; Nos. 15 and 16, 3.01½c.; Nos. 17 to 21, 3.16½c.; Nos. 22 to 24, 3.31½c.; Nos. 25 and 26, 3.51½c.; No. 27, 3.71½c.; No. 28, 3.91½c.; No. 30, 4.41½c.; Sheets from store: Blue Annealed, No. 12, 2.30c.; No. 14, 2.35c.; No. 16, 2.45c.; Box Annealed, Nos. 18 to 21, 2.70c.; Nos. 22 to 24, 2.75c.; No. 26, 2.80c.; No. 27, 2.85c.; No. 28, 2.95c.; No. 30, 3.35c.; Galvanized from store: Nos. 10 to 20, 3.30c. to 3.35c.; Nos. 22 to 24, 3.55c. to 3.60c.; No. 26, 3.65c. to 3.70c.; No. 27, 3.75c. to 3.95c.; No. 28, 4.10c.; No. 30, 4.65c. to 4.70c.

**Bars.**—With no large inquiries or orders in the market there is enough new trade in small lots developing from day to day to make in the aggregate a good volume of business. Prices are well maintained, the minimum applying, as a rule, to only good rolling specifications. No move has yet been made by the agricultural implement interest looking to a covering of the coming season's requirements. Quotations are as follows: Iron Bars, 1.81½c. to 1.86½c.; Steel Bars, 1.76½c., both half extras; Hoops, 2.16½c., extras as per Hoop card; Bands, 1.76½c., as per Bar card, half extras; Soft Steel Angles and Shapes, 1.86½c., half extras. Store prices are as follows: Bar Iron, 2.10c. to 2.25c.; Steel Bars, 2c. to 2.10c.; Steel Bands, 2c., as per Bar card, half extras; Soft Steel Hoops, 2.35c. to 2.45c., full extras.

**Merchant Pipe.**—Hopelessly behind with shipments the mills are not able to offer much encouragement of a nearby improvement to their importunate customers, whose complaints are growing loud and clamorous. Without active solicitation new business, in spite of these conditions, keeps coming in, though in ordinary course delivery cannot be made inside of eight weeks and longer. Discounts on car lots, Chicago, are as follows: Black Steel Pipe, 74.35 on the base sizes, ¾ to 5 in., and Galvanized, 64.35. From store in small lots, Chicago jobbers now quote 72½ per cent. on Black Steel Pipe, ¾ to 6 in. Iron Pipe is held in advance from four to five points above these prices.

**Boiler Tubes.**—Some mills that have been making fairly prompt deliveries on Tubes are now somewhat behind hand, especially on Charcoal Iron and Seamless. Special gauge sizes are difficult to get. As a result jobbers' stocks are being resorted to and store trade is good. Mill quotations are as follows, on the base sizes: 2¼ to 5 in., in carload lots, Steel Tubes, 63.35; Iron, 50.35; Seamless, 49.35; 2½ in. and smaller, and lengths over 18 ft., and 2½ in. and larger, and lengths over 22 ft., 10 per cent. extra. Store prices are as follows:

	Steel.	Iron.	Seamless.
1 to 1½ in.....	40	35	42½
1¾ to 2¼ in.....	50	35	35
2½ in.....	52½	35	30
2¾ to 3 in.....	63	47½	42½
6 in. and larger.....	50	35	..

**Merchant Steel.**—In common with other Finished Steel products there is a correspondingly heavy demand for all lines grouped under this head. While there is not that overcrowded condition observed in some lines, yet the leading mills are well provided with specifications. Quotations are as follows: Planished or Smooth Finished Tire Steel, 1.96½c.; Iron Finish, up to 1½ x ½ in., 1.91½c.; Iron Finish, 1½ x ½ in. and larger, 1.76½c., base; Channels for solid rubber Tires, ¾ to 1 in., 2.26½c., and 1¼-in. and larger, 2.16½c.; Smooth Finished Machinery Steel, 2.16½c.; Flat Sleigh Shoe, 1.71½c.; Concave and Convex Sleigh Shoe, 2.06½c.; Cutter Shoe, 2.35c.; Toe Calk Steel, 2.31½c.; Railroad Spring, 1.96½c.; Crucible Tool Steel, 6½c. to 8c., and still higher prices are asked on special grades. Shafting, 50 per cent. off in car lots and 45 per cent. in less than car lots, base territory.

**Cast Iron Pipe.**—Beyond the usual every day orders for maintenance work, little activity is observed in the market.



There is an entire absence of inquiries for lots of even moderate tonnage importance, and it looks as though the large buying interests were resolved to wait for a more favorable market. Prices remain unchanged, and are quoted as follows, per net ton: Water Pipe, 4-in., \$38 to \$39; 6 to 12 in., \$37 to \$38; 16-in. and up, \$36 to \$37, with \$1 extra for Gas Pipe.

**Coke.**—There is little new business of note, with no change in the general market, either in price or demand. We quote Connellsville 72-hr. Coke at \$3.75 and \$4.25 per car lot at the oven; By-Product, \$7.15, f.o.b. Chicago, prompt delivery.

**Old Material.**—The feature of the market is an increasing demand for Cast Scrap, which has resulted in a sharp advance on No. 1 Cast, on a sale of a single car last week \$20 a ton having been realized. High prices of spot Pig Iron are responsible for its freer use as a mixer. No changes are noted through the rest of the list, nor is any improvement in Railroad and Wrought expected at this time. The following quotations are on gross ton lots, f.o.b. Chicago:

Old Iron Rails.....	\$25.00 to \$26.00
Old Steel Rails, 4 ft. and over.....	19.00 to 19.50
Old Steel Rails, less than 4 ft.....	18.00 to 18.50
Heavy Relaying Rails, subject to inspection, 50 lb. and under.....	31.00 to 32.00
Old Car Wheels.....	23.00 to 23.50
Heavy Melting Steel Scrap.....	15.50 to 16.00
Frogs, Switches and Guards.....	16.00 to 16.50
Mixed Steel.....	12.50 to 13.00

The following quotations are per net ton:

Iron Fish Plates.....	\$20.00 to \$21.00
Iron Car Axles.....	25.00 to 25.50
Steel Car Axles.....	21.50 to 22.00
No. 1 Railroad Wrought.....	15.25 to 15.75
No. 2 Railroad Wrought.....	14.25 to 14.75
Railway Springs.....	15.50 to 16.00
Locomotive Tires, smooth.....	16.50 to 17.00
No. 1 Dealers' Forge.....	12.50 to 13.00
Mixed Bushing.....	11.00 to 11.50
Iron Axle Turnings.....	11.25 to 11.75
Soft Steel Axle Turnings.....	11.25 to 11.75
Machine Shop Turnings.....	11.25 to 11.75
Cast Borings.....	9.00 to 9.50
Mixed Borings, &c.....	9.00 to 9.50
No. 1 Mill.....	10.00 to 10.50
No. 2 Mill.....	9.00 to 9.50
No. 1 Rollers, cut to Sheets and Rings.....	11.00 to 11.50
No. 1 Cast Scrap.....	19.00 to 20.00
Stove Plate and Light Cast Scrap.....	15.00 to 15.50
Railroad Malleable.....	16.00 to 16.50
Agricultural Malleable.....	15.00 to 16.00

## Philadelphia.

PHILADELPHIA, PA., February 26, 1907.

The situation in the Iron and Steel market is not materially changed from what it was a week ago. There is more doing in Pig Iron, however, and it is not unlikely that the volume of business will be still larger after the turn of the month. Prices are not weak by any means, but premiums for spot delivery are less rigid than they were some time ago, while for the last half of the year it is not improbable that good business would be accepted at a slight modification from the figures recently quoted, although this applies only to first-class buyers. Furnaces have been working rather poorly, climatic conditions having been unfavorable the past two or three weeks, and it is feared that the February output will not be as large as was hoped for, but the fact that there is less disposition to quote high premiums is somewhat encouraging. There is a shortage of Iron, however, of every description, and while that continues it is difficult to see how prices can be much lower than they are to-day. Not only Iron for Steel making and foundry purposes, but mill Irons are extremely scarce, so much so that buyers have to chase around considerably before they can find anything available for reasonably prompt delivery; so that it cannot be said that there is any easing up in that respect, the majority of yards being so bare of stock that it is difficult to keep the plants regularly employed. With better weather conditions it is hoped that there will be less restriction than there is at the present time, although this has been hoped for week after week and month after month without its being realized to any appreciable extent. The continuous arrival of English Iron is the only substantial relief, and this may be continued until our own furnaces are in better shape than they are to-day. There are two cargoes of Middlesbrough Iron discharging at this port at the present time, all of which has been sold, together with a portion of another cargo which is due to-day. Prices of this grade of Iron are somewhat easier, owing to a decline in foreign markets, although the imports of Scotch Iron have been suspended because of the difficulty in securing freights. That grade is, therefore, not now a factor in this territory.

**Pig Iron.**—There has been more inquiry for Pig Iron the past few days, and it is thought that a considerable tonnage will be taken in the near future. This applies particularly to Foundry and Mill Irons, the latter being wanted in

large quantities for shipment during the next 30 to 60 days at the full prices quoted a week ago. Foundry Irons are under negotiation for the second and third quarters, and from the character of the inquiries it is believed that considerable tonnage will change hands within the next few days. Prices, while nominally the same as during the past few weeks, are probably a trifle easier, and the right kind of buyers may possibly be able to secure slight concessions. The cost of production is very high, however, and it is impossible for producers to make Iron at materially lower prices than those now quoted; yet at the same time they feel it to be good policy to accept some business, particularly when the buyer is strictly gilt edged. Prospects in regard to supplies are somewhat indefinite. There seems to be a lurking suspicion that prices are too high to be maintained for any great length of time, yet on the other hand the scarcity has continued so long without showing any appreciable change that buyers are by no means confident that they will be any better off 60 to 90 days hence than they are to-day. As a matter of fact, if the demand continues at the present rate (and there is nothing to indicate anything to the contrary), prices may not only be maintained, but gain further strength, but it is a most difficult matter to diagnose the future with any degree of confidence, and this is realized by both buyers and sellers. If it were not for the relief which is obtained by the use of foreign Iron prices would, no doubt, be at higher figures than they have yet reached. The decline in the foreign markets, however, brings us within reach of Foundry Iron at about \$21 to \$22, which is regarded as a pretty effectual check to further advances, and while the tonnage of foreign Iron is somewhat limited, yet the mere fact that 60,000 to 80,000 tons per month may be made available will be a substantial check to any further advances in the American product. A good deal of interest is manifested in regard to the market for Basic Iron during the last half of the year. Both sides seem to be willing to do business, but consumers are not prepared to pay the prices which manufacturers ask; neither are the latter disposed to make concessions. There is no difficulty in finding buyers at about \$24 to \$24.25 for the second quarter's deliveries, while March shipments would probably command \$25 or better, which figure indicates a material scarcity; otherwise buyers would not pay the premium indicated by quotations. No sales of this grade have been reported since last week, but the market is about as we have stated. Foundry Iron for spot delivery is still quoted by some at \$26 and upward, but such prices are only for carload lots for immediate shipment and cannot be regarded as being any criterion of the general market. The price for March and April in moderate sized lots would probably be not much, if anything, over \$25.50, and for the last half of the year \$23 to \$23.75. Mill Irons have sold at \$23 to \$23.25 for March and April deliveries, and one large block at \$22.50 for the last half of the year. Low Phosphorus is still somewhat quiet, although about \$27.50 was paid for a 500-ton lot for nearby delivery. Taking the market in its entirety, it may be said that there is a strong undertone, although the extreme premiums for early deliveries are less rigid than they have been for some weeks past. A fair average of the market is shown by the following quotations for second quarter and the third and fourth quarters, for deliveries in eastern Pennsylvania or adjoining territory:

### First Half 1907.

No. 2 X Foundry.....	\$25.50 to \$26.00
Standard Gray Forge.....	23.00 to 23.25
Basic.....	24.00 to 25.00
Low Phosphorus.....	27.00 to 27.50
Malleable.....	25.50 to 26.00
Middlesbrough No. 3, on dock.....	22.50 to 23.00

### Last Half 1907.

No. 1 X Foundry.....	\$25.00 to \$25.50
No. 2 X Foundry.....	23.25 to 24.00
No. 2 Plain.....	22.50 to 23.00
Standard Gray Forge.....	22.00 to 22.50
Basic.....	23.00 to 23.50
Low Phosphorus.....	26.50 to 27.00
Malleable.....	24.00 to 24.50

**Ferroalloys.**—The market is very unsettled. Those who need Ferromanganese for prompt delivery have to pay anywhere from \$74 to \$75, while forward shipments are quoted all the way from \$68 to \$72, but anything like exact figures are out of the question under present conditions.

**Steel.**—Inquiries are numerous, and in some cases they are for large lots, but those taken have not been important thus far. Sales of good size, however, are regarded as almost a certainty in the near future, and as mills are full of business prices are firmly held at last week's quotations—namely, \$33 to \$34 for Soft Steel, according to quantity and delivery, and \$35 to \$40 for Forging Steel.

**Plates.**—There is no particular change in this department, mills being very full of orders and finding it difficult to make deliveries as promptly as required. The shortage of Pig Iron still prevents a full output, although it is hoped that an era of improvement will not be delayed much longer. Quotations are unchanged, as follows:

	Carload. Cents.	Part carload. Cents.
Tank, Bridge and Boat Steel.....	2.13½	2.18½
Flange or Boiler Steel.....	2.23½	2.28½
Marine.....	2.53½	2.58½
Locomotive Firebox Steel.....	2.63½	2.68½

The above are base prices for ¼-in. and heavier. The following extras apply:

	Extra per 100 lb.
3-16-in. thick.....	\$0.10
Nos. 7 and 8, B. W. G.....	.15
No. 9, B. W. G.....	.25
Plates over 100 to 110 in.....	.05
Plates over 110 to 115 in.....	.10
Plates over 115 to 120 in.....	.15
Plates over 120 to 125 in.....	.25
Plates over 125 to 130 in.....	.50
Plates over 130 in.....	1.00

**Structural Material.**—Business continues of the routine character, as recently reported. The demand for small and medium sized lots is very good, and mills appear to have business enough to keep them fully employed. Prices are as last quoted—namely, 1.83½c. to 2c. for Beams, Angles and Channels.

**Bars.**—There is no material change from last week. The demand is good and full employment is the rule at most of the leading mills. Specifications are satisfactory and the general outlook indicates a continued good demand in the near future. Prices remain at 1.93½c. for Best Refined Bar Iron, and about the same for Steel for prompt shipments, but a tenth to two-tenths less is accepted for Steel Bars for deliveries during the summer months.

**Sheets.**—The demand for Sheets is unusually strong and orders are piling up at a great rate. The mills in this district have more business on their books than they have had during the past year and a half. Prices, therefore, are very firm at last week's quotations, which are as follows for mill shipments, with a tenth additional for small quantities: Nos. 18 to 20, 2.80c.; Nos. 22 to 24, 2.90c.; Nos. 25 to 26, 3c.; No. 27, 3.10c., and No. 28, 3.20c.

**Old Material.**—There is no special change of feature in this department, although some think that prices are a shade easier. Large sales have been made at \$19 for No. 1 Steel, which appears to be a firm quotation for that article. Other specialties are not materially different from the figures quoted last week, bids and offers for material delivered in buyers' yards being about as follows:

Steel Crops and Rails.....	\$19.50 to \$20.00
No. 1 Steel Scrap.....	18.75 to 19.25
Low Phosphorus.....	22.50 to 23.00
Old Steel Axles.....	22.00 to 22.50
Old Iron Axles.....	31.00 to 32.00
Old Iron Rails.....	27.00 to 28.00
Old Car Wheels.....	23.25 to 24.00
Choice No. 1 R. R. Wrought.....	21.00 to 22.00
No. 1 Yard Scrap.....	19.50 to 20.50
Long and Short.....	18.50 to 19.00
Machinery Scrap.....	22.00 to 22.50
Wrought Iron Pipe.....	16.00 to 16.50
No. 1 Forge Fire Scrap.....	17.00 to 17.25
No. 2 Light.....	11.75 to 12.00
Wrought Turnings.....	16.50 to 17.00
Axle Turnings.....	17.00 to 17.50
Stove Plate.....	16.75 to 17.25
Cast Borings.....	15.00 to 15.50
Grate Bars.....	15.50 to 16.00

## Pittsburgh.

PARK BUILDING February 27, 1907.—(By Telegraph.)

**Pig Iron.**—Pessimistic reports in the daily press of a serious break in prices of Bessemer and Basic Pig Iron for early delivery are largely untrue and are harmful in the fact that they are giving prospective buyers a decidedly wrong impression of conditions that actually exist to-day, both as regards Iron for delivery up to July and in last half of the year. There is very little Bessemer or Basic that will be made by the Merchant furnaces between now and July that is unsold, prices being firm on the basis of \$22, Valley furnace, for either Bessemer or Basic, for delivery over the next four months, commencing March. Small lots of Bessemer for prompt delivery continue to sell at \$23, Valley furnace, and we note a sale of 500 tons for early March shipment at that price. As regards Iron for second half, it can be stated that there will be 50,000 to 60,000 tons of Bessemer and Basic per month over the last half of the year, made by the outside furnaces, that will be available for the open market, most of this tonnage being as yet unsold. If the present heavy consumption continues, and indications are that it will continue, most of this Iron will be absorbed by the natural demand, but it is possible that part of this tonnage may necessarily go to some of the large Steel interests, one or two of which stand ready to take any surplus at a satisfactory price. It is recognized by both makers and consumers that prices of Bessemer and Basic Iron are too high and that a gradual decline to, say, about \$20, Valley furnace, would be beneficial to the market. The present strong situation will be seen to preclude any violent break, but it is not unlikely that for second half of the year delivery prices may recede to some extent. We quote Bessemer Iron for delivery up to July at \$22, Valley furnace. There is practically no inquiry for second half, nor is there likely to be until the situation has cleared to some

extent. We quote Northern brands of No. 2 Foundry for prompt delivery at about \$24, Valley furnace, while for second quarter \$23 or less could be done. We quote Northern Forge Iron at \$21, Valley furnace, or \$21.85, Pittsburgh, and note a sale of 1000 tons at this price.

**Steel.**—While most consumers are covered by contracts, there is a fair amount of inquiry for Billets and Bars, and we note a sale of a round tonnage of Sheet Bars in long lengths for second quarter delivery on the basis of \$30, f.o.b. mill, at Youngstown. Open Hearth Billets are being offered by outside mills on the basis of about \$31.50, Pittsburgh. We quote 4 x 4 Bessemer Billets at \$29.50 and Open Hearth about \$31.50, Pittsburgh. Sheet and Tin Bars in random lengths are held at \$30, Pittsburgh or Youngstown mill.

(By Mail.)

A strong tone prevails throughout the Finished Steel trade. Specifications continue heavy, and there is pressure to get material. The Steel Bar trade has developed a congestion almost as bad as that which has existed for some time in Plates, the leading interest now making promises on new Steel Bar specifications for the third quarter. All evidences point to a continuance of the present mill activity until very late in the year, if not clear through the year. The Steel trade has not taken seriously the talk of trouble through railroads not being able to finance new purchases.

**Ferromanganese.**—The market continues to present a weak appearance, and there are quotations made at as low as \$68, Pittsburgh, for late delivery, but consumers are not disposed to take hold. Relatively small lots for second half delivery have sold at \$68, Baltimore, or \$69.92, Pittsburgh. Prompt carloads command about \$73, Baltimore, or \$75, Pittsburgh.

**Muck Bar.**—The market is very strong. A sale of a round tonnage has been made for delivery up to July 1, at \$36.65, Pittsburgh, but this figure could not be duplicated, and we quote the market as \$37, Pittsburgh, with inquiries being turned down. Part Scrap Bars are \$32 to \$33, Pittsburgh.

**Rods.**—Early deliveries can hardly be had at all. For forward delivery we quote Bessemer Rods at \$37 to \$38, and Open Hearth at \$38 to \$39, but small lots for early delivery might command still higher prices.

**Skelp.**—Skelp is extremely scarce. A firm bid for a large tonnage at slightly less than the open market has been going the rounds without interesting the mills at all. The East has been taking the wider sizes of Iron Skelp for 8-in. and larger Line Pipe, and when the oil country rush comes within the next few weeks it is probable that there will be many inquiries which will have to be turned down through sheer inability of the mills to furnish the material. We repeat former quotations as follows, although it is difficult to obtain any very early deliveries at these prices: Grooved Steel Skelp, 1.85c. to 1.90c.; Sheared Steel Skelp, 1.95c. to 2c.; Grooved Iron Skelp, 2.10c. to 2.15c.; Sheared Iron Skelp, 2.20c. to 2.25c.

**Steel Rails.**—While there has been a good volume of inquiry in the market actual sales by the local mill were very light in Standard Rails, while they were about normal in Light Rails. The Carnegie Steel Company's Light Rail mill is being operated to only part of its capacity, on account of the scarcity of Steel, although it has its tonnage sold for many months ahead. We quote Light Rails as follows: \$33 to \$34 for 20 to 45 lb.; \$34 to \$35 for 16-lb., and \$35 to \$36 for 12-lb., at mill. Angle Splice Bars are held at 1.65c., and Standard Section Rails at \$28, at mill.

**Structural Material.**—New business is relatively light, but the mills have all they can do to fill requirements, with the diversion of Steel to other finishing departments. Prices continue very strong, as follows: Beams and Channels, up to 15-in., 1.70c.; over 15-in., 1.80c.; Angles, 3 x 2 x ¼ in. thick up to 6 x 6 in., 1.70c.; 8 x 8 and 7 x 3½ in., 1.80c.; Tees, 3-in. and larger, 1.70c.; Tees, 3-in. and larger, 1.75c. Under the Steel Bar card, Angles, Channels and Tees under 5-in. are 1.60c., base, for Bessemer and Open Hearth, subject to half extras on the Standard Steel Bar card.

**Plates.**—Specifications continue fully to equal the current output, which is very large. At regular mill prices only late delivery can be secured, while for small lots for prompt shipment it is possible to obtain about 2c. per lb. for regular Tank quality. We continue to quote the regular mill prices as follows: Tank Plate, ¼ in. thick, 6¼ in. up to 100 in. wide, 1.70c. to 1.80c., base, at mills, Pittsburgh. Extras over this price are as follows:

	Extra per 100 lb.
Gauges lighter than ¼-in. to and including 3-16-in.	
Plates on thin edges.....	\$0.10
Gauges Nos. 7 and 8.....	.15
Gauge No. 9.....	.25
Plates over 100 to 110 in.....	.05
Plates over 110 to 115 in.....	.10
Plates over 115 to 120 in.....	.15
Plates over 120 to 125 in.....	.25
Plates over 125 to 130 in.....	.50
Plates over 130 in.....	1.00



All sketches (excepting straight taper Plates varying not more than 4 in. in width at ends, narrowest end being not less than 30 in.).....	10
Complete Circles.....	20
Boiler and Flange Steel Plates.....	10
"A. B. M. A." and ordinary Firebox Steel Plates.....	20
Still Bottom Steel.....	30
Marine Steel.....	40

Shell Grade of Steel is abandoned.

**TERMS.**—Net cash 30 days. For anticipated payments a maximum discount may be allowed at the rate of 6 per cent. per annum and for a longer time than 30 days interest shall be charged at the same rate per annum. Invoices paid within 10 days from date thereof, discount of  $\frac{1}{4}$  of 1 per cent. is allowable. Pacific Coast base, 1.60c., f.o.b. Pittsburgh, with all rail tariff rate of freight to destination added, no reduction for rectangular shapes 14 in. wide down to 6 in. of Tank, Ship or Bridge quality.

**Sheets.**—The mills are sold up quite fully on both Black and Galvanized until July, and occasional orders for early delivery, which would normally be placed with mills, are going through jobbers. A number of the mills are asking premiums for prompt shipment, and in some cases these are paid. We quote: Blue Annealed Sheets, No. 10 gauge and heavier, 1.85c.; Nos. 11 and 12, 1.90c.; Nos. 13 and 14, 1.95c.; Nos. 15 and 16, 2.05c.; Box Annealed, Nos. 17 to 21, 2.35c.; Nos. 22 to 24, 2.40c.; Nos. 25 and 26, 2.45c.; No. 27, 2.50c.; No. 28, 2.60c.; No. 29, 2.75c.; No. 30, 2.85c. We quote Galvanized Sheets as follows: Nos. 10 and 11, 2.65c.; Nos. 12 and 14, 2.75c.; Nos. 15 and 16, 2.85c.; Nos. 17 to 21, 3c.; Nos. 22 and 24, 3.15c.; Nos. 25 and 26, 3.35c.; No. 27, 3.55c.; No. 28, 3.75c.; No. 29, 4c., and No. 30, 4.25c. We quote No. 28 Gauge Painted Roofing Sheets at \$1.85 per square, and Galvanized Roofing Sheets, No. 28 gauge, \$3.25 per square for 2-in. corrugations. These prices are for carload lots, jobbers charging the usual advances.

**Hoops and Bands.**—Mills are very well sold up and it is difficult to get any early delivery except by paying a premium of, say, \$2 a ton. We continue to quote regular prices, as follows: Steel Hoops, 2c., and Bands for all purposes at 1.60c., base, half extras, as per Standard Steel card. These prices are for carload lots, f.o.b. Pittsburgh, plus full tariff rail rate to point of delivery, an advance of \$2 a ton being charged for less than carloads.

**Tin Plate.**—The market is not very active as regards new business, but specifications continue heavy, and the mills are, as a rule, well filled for the second quarter. For third quarter independent mills continue to obtain 10c. rise over the regular market, and the impression in the trade is that if any official advance is made it will be only this amount, the present price being \$3.90 for 100-lb. Cokes, f.o.b. Pittsburgh, for 14 x 20 100-lb. Cokes, terms 30 days, less 2 per cent. off for cash in 10 days, on which price a rebate of 5c. a box is allowed for carload and larger lots.

**Iron and Steel Bars.**—The secession movement revived by a mass meeting of Pittsburgh puddlers last Sunday appears to be more important than previous moves in this direction, and it is possible that the puddlers as a body may secede from the Amalgamated Association. If this move were made it would be for no purpose than to make and endeavor to enforce a demand for a much higher scale, which the manufacturers would doubtless resist, so that there is a possibility of serious trouble when the present scale expires, June 30 next. Puddlers are scarce, as few have been learning the trade, while the demand for men has been increasing steadily for two or three years past with the revival in iron making. Some puddlers are forced to pay their helpers one-half their earnings, while the scale calls for only one-third and an additional 5 per cent., equal to 38 1-3 per cent., although the men do not figure it in this short way. The Steel Bar mills have fallen still farther behind with the continuous heavy flow of specifications, and the regular promise of the Carnegie Steel Company on new specifications is now third quarter. The agricultural tonnage is moving off very freely, and June 30 will find contracts well worked out, so that the agricultural interests are expected to be in the market at their usual time, by the early part of April. It is stated that the mills expect to get these contracts at the full price of 1.60c. Some good sized contracts with various consumers which were expected to run to April 1 or longer have been worked out and new contracts at 1.60c. are being negotiated. We quote Refined Iron Bars at 1.80c., Pittsburgh, and Steel Bars at 1.60c., base, half extras, f.o.b. Pittsburgh, these prices being for forward delivery. For prompt shipment premiums of \$1 and \$2 a ton are asked.

**Railroad Spikes.**—The market is very strong, but not especially active. Prompt deliveries are not easily obtained. We quote standard sizes at \$2.40 to \$2.50, and the smaller sizes at \$2.50 to \$2.60 per 100 lb. For prompt shipment \$2.65 to \$2.75 is quoted.

**Merchant Steel.**—Mills are still six or eight weeks behind on orders. Prices are firm, but unchanged, as follows: Smooth Finished Machinery Steel, 1.85c. to 2c., depending on quality; Flat Sleigh Shoe, 1.65c. to 1.75c.; Cutter Shoe, 2.15c. to 2.20c.; Toe Calk Steel, 2.10c. to 2.15c.; Railroad Spring Steel, 1.75c. to 1.80c.; Crucible Tool Steel, 6c. to 8c., for ordinary grades, and 10c. and upward for special grades. The demand for Shafting is reported active, and prices are

fairly well maintained. We quote Cold Rolled Shafting at 50 per cent. off in carloads, and 45 per cent. in less than carloads, delivered in base territory.

**Spelter.**—The market continues very firm. Some producers are so well sold up that they will not quote for earlier than April delivery. An important galvanizing concern in the Mahoning Valley was recently closed for lack of Spelter. We quote 6.90c., Pittsburgh, for prompt shipment from the West, equal to 6.77 $\frac{1}{2}$ c., St. Louis, but as noted a number of producers cannot quote on this delivery. For April delivery 6.85c. to 6.87 $\frac{1}{2}$ c., Pittsburgh, is quoted on 100-ton lots. For later delivery slightly lower quotations could be obtained, but consumers are not interested, as they regard prices as very high.

**Pipes and Tubes.**—The mills are filled up very tight, although for months they have been scaling down many orders. If the rush for oil country goods, in anticipation of the roads opening up, is as large as usual, the mills will be totally unable to take care of it. Some of the mills are hampered by a short supply of Skelp, but it is next to impossible to buy any large tonnages in the market for any early delivery. The extreme discount on Merchant sizes of Iron Pipe is 70 and 5 per cent. off for  $\frac{3}{4}$  to 6 in., and on Steel Pipe, 76 and 5 per cent. off, for carload lots to the large trade. Official discounts on Steel Pipe, which are shaded about one point or more to the large trade, are as follows:

	Jobbers, carloads.	
	Black.	Galv.
$\frac{1}{4}$ to $\frac{1}{2}$ in.....	67	51
$\frac{3}{4}$ in.....	69	55
$\frac{1}{2}$ in.....	71	59
$\frac{3}{4}$ to 6 in.....	75	65
7 to 12 in.....	70	55
Extra strong, plain ends:		
$\frac{1}{4}$ to $\frac{3}{4}$ in.....	60	48
$\frac{1}{2}$ to 4 in.....	67	55
$\frac{3}{4}$ to 8 in.....	63	51
Double extra strong, plain ends:		
$\frac{1}{2}$ to 8 in.....	56	45

Official discounts on Iron Pipe, which are shaded one point or more to the large trade, are as follows, f.o.b. Pittsburgh:

	Standard Genuine Iron Pipe.	
	Black.	Galvanized.
$\frac{3}{4}$ to 6 in.....	Per cent. 69 and 5	59 and 5
$\frac{1}{2}$ in.....	64 and 5	52 and 5
$\frac{3}{4}$ in.....	62 and 5	44 and 5
$\frac{1}{2}$ and $\frac{3}{4}$ in.....	60 and 5	44 and 5
7 to 12 in.....	64 and 5	49 and 5

Extra Heavy Iron Pipe, Plain Ends.		
$\frac{1}{4}$ , $\frac{1}{2}$ and $\frac{3}{4}$ in.....	64 and 5	42 and 5
$\frac{1}{2}$ to 4 in.....	61 and 5	49 and 5
$\frac{3}{4}$ to 8 in.....	57 and 5	44 and 5

**Boiler Tubes.**—The market is strong at the advance made a fortnight ago. The mills are filled up for many months to come. Discounts are as follows:

	Boiler Tubes.	Iron.	Steel.
1 to 1 $\frac{1}{4}$ in.....	41	47	
1 $\frac{1}{4}$ to 2 $\frac{1}{4}$ in.....	42	59	
2 $\frac{1}{2}$ in.....	47	61	
2 $\frac{1}{2}$ to 5 in.....	52	65	
6 to 13 in.....	42	59	

**Iron and Steel Scrap.**—The cheaper grades of Scrap are quite strong, and in some cases a trifle higher, while the higher grades continue relatively weak. The embargo at Sharon has been lifted, but the one at Steubenville is still on. The Carnegie Steel Company is taking in what Scrap is offered at \$18, but has obtained only a few thousand tons, and the best grades are not to be had at this figure. We quote, per gross ton, Heavy Melting Scrap at \$18 to \$18.50 for Sharon or Steubenville delivery; Old Steel Rails, short pieces, and Frog, Switch and Guard, \$18.25 to \$18.50; Re-rolling Rails, \$19; Wrought Turnings have advanced further, to \$15.25 to \$15.50, while Heavy Turnings bring \$16 and over; No. 1 Wrought Scrap is relatively easy at \$19.25 to \$19.50, and we quote other grades, as follows: Cast Borings, \$13; Old Car Wheels, \$24 to \$24.50; Steel Axles, \$21; Grate Bars, \$16.25; Stove Plate, \$16.25; No. 1 Cast Scrap, \$19.50 to \$20; Low Phosphorus Scrap, \$22 to \$22.50.

**Coke.**—The Coke market is only fairly strong, with the progress of the season. We quote strictly Connellsville Furnace Coke at \$3.50 and 72-hr. Connellsville Foundry Coke at \$3.75 to \$3.90, at ovens.

The National Machinery Company, manufacturer of bolt, nut, rivet and wire nail machinery, Tiffin, Ohio, announces that at a meeting of the Board of Directors, held January 30, a pension fund was set aside for the benefit of the employees who, through old age, become incapable of further service. The only requirement is that the employee must have been in the service of the company for a period of not less than 15 years. All classes of employees are eligible, including machinists, foundrymen and yard helpers, and the rate of pension is \$1 per day.

## Cleveland.

CLEVELAND, OHIO, February 26, 1907.

There are still quite a number of inquiries for Old Range Ores for prompt delivery, but owners seem to want about all the Ore that they have on the docks, and consumers who need a little Ore to piece out before the opening of navigation are having a hard time to find it. Although the market is very quiet as far as next season's Ore is concerned, there are occasional inquiries for Bessemer and other grades of Ore for next season. A little off grade Mesaba Non-Bessemer seems to be about the only 1907 Ore in the market. Reports from the ranges indicate that underground mining is going on very satisfactorily. All the operators are rushing work as rapidly as possible. Ore continues to move freely from the Lake Erie docks, although the cold weather of the past few days temporarily interfered with the movement. Ore prices for 1907 deliveries remain firm and unchanged. Nominal quotations at Lake Erie docks are as follows per gross ton: Old Range Bessemer, \$5; Mesaba Bessemer, \$4.75; Old Range Non-Bessemer, \$4.25; Mesaba Non-Bessemer, \$4; Siliceous Bessemer, \$2.75; Siliceous Non-Bessemer, \$2.50.

**Pig Iron.**—There are no indications of weakness in the Northern Foundry Iron market, and the heavy demand for spot shipment and for the second quarter continues. Many foundries in this district have discovered that they have not bought enough to cover their requirements, and are now making small purchases to fill out. Sales of about 10,000 tons of No. 2 and No. 3 Northern Foundry in small lots for second quarter delivery are reported. For last half delivery the Northern Foundry Iron market continues rather quiet, although some foundries that have been holding off have made purchases the past few days. Numerous complaints of slow deliveries of Iron previously contracted for are being made by consumers. Because their requirements are larger than they anticipated, many foundries are melting their Iron about as fast as it comes from the furnaces, and few have more than a small supply on hand. Foundry Iron for prompt delivery is very scarce, and some furnaces are so well sold up for the entire year that they are making no offers even for the last half for the present. Northern Foundry No. 2 is held at \$24 to \$25 for prompt shipment, and for the second quarter it is firm at \$23 to \$23.50. For second half delivery \$22, Valley furnace, continues to be the pretty well established price for No. 2 Foundry. A few sales are reported at \$21.50, but one interest is holding its Iron at \$22.75 to \$23 and reports sales at those prices. No change has developed in the Bessemer Iron situation, and a difference of opinion is expressed as to the outcome. Some furnacemen admit that important concessions must be made to the large Steel interests before they can hope to sell their output for the last half, while others declare that they will not make anywhere near the concession demanded, and declare that they will change their furnaces to Foundry Iron before they will make Bessemer for \$20, the price demanded by the Steel interests. Makers of Basic Iron are not so strong in their demand that present prices be maintained, and express a disposition to meet the conditions. Furnaces are no longer asking over \$21 for Basic Iron for last half delivery, and doubtless would sell lower than that if they had any offers between \$20 and \$21. No inquiries, however, are being made for either Basic or Bessemer. One sale of Malleable Iron for the last half at \$20, Valley furnace, is reported. Bessemer furnaces still give the quotation of \$21.50 to \$22, Valley furnace, for the last half. Southern Iron remains firm at \$18.50 to \$19, Birmingham, for the second half, with no indication of weakness. Quotations for the last half of 1907, f.o.b. Cleveland, are as follows:

Northern Foundry, No. 1.....	\$22.50 to \$23.00
Northern Foundry, No. 2.....	22.00 to 22.50
Northern Foundry, No. 3.....	21.50 to 22.00
Southern Foundry, No. 2.....	22.85 to 23.35
Gray Forge.....	21.00 to 21.50

**Coke.**—There is some activity in Furnace Coke for the last half and some good sales have been made. There is also some inquiry for the remainder of the first half. For the second half Furnace Coke is selling at \$3.25, at oven. For prompt shipment the price at oven is \$3.75. Foundry Coke is firm and dealers are asking \$4 at oven for last half delivery, the same price at which they are selling for first half.

**Finished Iron and Steel.**—Specifications continue to come in heavily for Plates, Shapes and Bars, and considerable new business in all lines is being booked for last half delivery. Prices remain fully as firm as they have been and deliveries show no improvement. The mills are not inclined to take on long time contracts and are not pushing sales for the last half of the year, but they are taking orders from customers who want to cover at the present prices. Some of the representatives of mills who have gone out among their customers the past week to canvass the situation report that all indications point to a heavy demand for the latter part of the year. At present there are many inquiries for small orders for prompt shipment. The majority of these orders are taken at premium prices. Some mills are asking 1.70c., Pittsburgh, for Steel Bars for future delivery, but the ma-

jority of the mills are quoting 1.60c. Iron Bars can be bought for 1.75c., Pittsburgh, for large orders, although the most of the mills are asking 1.80c., Pittsburgh. The mill price for Iron Bars, Cleveland, is 1.89½c. The demand on local warehouses for all kinds of Finished Material in small lots continues heavy. For prompt shipment Plates are being sold at premiums of \$4 to \$5 a ton. The Structural Material market is fairly active and inquiries are more numerous. A good demand is expected in this territory during the next few months. Billets continue scarce, with no change in price. Sheet deliveries show no improvement. Local warehouse prices are the same as a week ago. The jobbers are getting 1.95c. to 2c. for Steel Bars and 2c. for Iron Bars. Local stock prices on Sheets are as follows: Blue Annealed, No. 10, 2.30c.; No. 28, One Pass Cold Rolled, 3.05c.; No. 28, Galvanized, 4.15c.

**Old Material.**—The market continues weak. The exception is Turnings, for which there is a good demand, and their price has advanced. In other lines the consumers are pretty well filled up, and the trading is mostly between dealers. There is some buying for immediate needs, but for the future consumers are playing a waiting game. The following are the dealers' prices to the trade per gross ton, f.o.b. Cleveland:

Old Steel Rails.....	\$17.50 to \$18.00
Old Iron Rails.....	23.50 to 24.50
Steel Car Axles.....	21.00 to 21.50
Old Car Wheels.....	21.00 to 21.50
Relaying Rails, 50 lb. and over.....	29.00 to 31.00
Relaying Rails, under 50 lb.....	31.00 to 32.50
Heavy Melting Steel.....	17.00 to 17.50
Railroad Malleable.....	17.50
Agricultural Malleable.....	15.50
Light Bundled Sheet Scrap.....	16.00 to 17.00
Bundled Tin Scrap.....	17.00 to 19.00

The following quotations are per net ton, f.o.b. Cleveland:

Iron Car Axles.....	\$29.25 to \$29.75
Cast Borings.....	9.75 to 10.25
Iron and Steel Turnings and Drillings.....	12.50 to 13.00
No. 1 Busheling.....	15.50
No. 1 Railroad Wrought.....	17.50 to 18.00
No. 1 Cast.....	18.00 to 18.50
Stove Plate.....	13.75 to 14.25

## Cincinnati.

FIFTH AND MAIN STS., February 27, 1907.—(By Telegraph.)

**Pig Iron.**—Inquiry during the week has been very light. No sales are reported of any size. Prices, however, are apparently unchanged, with no weak spots discernible, with the possible exception of Gray Forge, which is said to be in little demand. Standard Birmingham brands are still quotable at \$23 for No. 2 for February and March delivery, with \$18.50 the ruling figure for the last half. The car situation is unimproved, and it is quite certain that February will prove to have been the most unsatisfactory of all the months so far as the movement of contract shipments is concerned. Should this congestion become relieved and contract Iron be forwarded without so many delays it is difficult to say just what effect this should have on spot conditions as they exist to-day, although the presumption is that prices would show some decline. The demand for Northern Iron is said to be stronger than for Southern, and prices are holding firm. Charcoal Irons are in strong demand, quotations ruling high. There is one inquiry for 1000 tons, delivery running from July, 1907, to July, 1908, one furnace being sold up solidly for the remainder of this year and half of next. As matters now stand, the new Birmingham freight rate will become effective according to schedule on March 3. Freight rates from the Hanging Rock District to Cincinnati are \$1.15, and from Birmingham \$3. We quote, f.o.b. Cincinnati:

Southern Coke, No. 1.....	\$26.50 to \$27.00
Southern Coke, No. 2.....	26.00 to 26.50
Southern Coke, No. 3.....	25.50 to 26.00
Southern Coke, No. 4.....	25.00 to 25.50
Southern Coke, No. 1 Soft.....	26.50 to 27.00
Southern Coke, No. 2 Soft.....	26.00 to 26.50
Southern Coke, Gray Forge.....	23.00 to 23.50
Southern Coke, Mottled.....	22.00 to 22.50
Ohio Silvery, 8 per cent. Silicon.....	31.15 to 31.65
Lake Superior Coke, No. 1.....	26.65 to 27.15
Lake Superior Coke, No. 2.....	26.15 to 26.65
Lake Superior Coke, No. 3.....	25.65 to 26.15

## Car Wheel Irons.

Standard Southern Car Wheel.....	\$29.00 to \$29.50
Lake Superior Car Wheel.....	27.50 to 28.00

**Coke.**—The market is rather quiet, with the available supply equal to the demand. Shipments are moving with fair regularity. We quote the best brands of Connellsville and Virginia Foundry from \$4 to \$4.15, f.o.b. ovens.

**Finished Iron and Steel.**—There appears to be a little more activity along all lines, and prices are very firm, even showing a hardening tendency. We quote, f.o.b. Cincinnati, as follows: Iron Bars, carload lots, 1.93c., half extras, and in smaller lots, 2.10c., full extras; Steel Bars, carload lots, 1.73c., half extras, and in smaller lots, 1.95c., full extras; Base Angles, carload lots, 1.83c.; Beams and Channels, carload lots, 1.83c.; Plates, ¼-in. and heavier, carload lots, 1.83c., and in smaller lots, 2c.; Sheets, No. 16, carload lots, 2.15c., and in smaller lots, 2.70c.; No. 14, carload lots, 2.05c.,



and in smaller lots, 2.60c.; Steel Tire, 1 x 1/4 in. or heavier, 1.93c. in carload lots.

**Old Material.**—The demand is good, with a fair supply of all kinds obtainable. We quote dealers' prices, f.o.b. Cincinnati, as follows:

No. 1 R. R. Wrought, net ton.....	\$17.75 to \$18.25
Cast Borings, net ton.....	9.50 to 9.75
Steel Turnings, net ton.....	11.75 to 12.75
No. 1 Cast Scrap, net ton.....	16.75 to 17.75
No. 1 Iron Scrap, net ton.....	26.75 to 27.75
Old Iron Axles, gross ton.....	27.00 to 27.50
Old Steel Rails, long, gross ton.....	19.25 to 20.25
Relaying Rails, 56 lb. and up, gross ton.....	28.75 to 29.75
Old Car Wheels, gross ton.....	22.75 to 23.25
Low Phosphorus Scrap, gross ton.....	21.25 to 21.75

## Birmingham.

BIRMINGHAM, ALA., February 24, 1907.

**Pig Iron.**—During the past few days buyers representing some of the largest consumers of Foundry Iron in the country have been in the district, viewing the situation and conferring with the producers. It is understood, however, that no sales were made, the buyers insisting on concessions from prevailing prices, but the furnace people standing firm for \$18.50 for second half. Sales during the month have been extremely light, all the producers selling some Iron, which usually covers all the deliveries for the year. It is estimated that fewer orders have been booked during February than for any month since last summer. How long the producers will stand for this state of affairs depends largely on the amount of business each has on hand. This is variously estimated, practically every one claiming to be sold up for the first half and several stating they have only a limited quantity for shipment during the third quarter. As a matter of fact, however, every producer in this district, with but two exceptions, is now selling spot Iron. Whether they have underestimated their producing capacity or are selling contract Iron is hard to say, but they are always willing to "help you out" with a few cars if you want to pay the price. The car situation is largely responsible for this state of affairs, any failure to ship Iron when due being attributed to this cause. The report that there is an agreement among the producers here to control the price is emphatically denied.

The Charcoal furnace of the Eagle Iron Company at Attalla has resumed operation, after a long suspension owing to inability to secure a supply of wood for making charcoal. This stack has a capacity of only 80 tons per day. There are at present only two stacks in the State making this grade, and the demand is such as to keep them booked for several months in advance. Charcoal Iron is quoted at from \$26 to \$27 per ton.

**Cast Iron Pipe.**—No deals for large tonnage are now pending in which the foundries in this district are interested. Inquiries for small lots continue numerous and the amount of business booked each week will average more than the production. The manufacturers are therefore well pleased with the situation. Buyers who have delayed purchases, hoping for concessions in price, are likely to be disappointed, as with order books in present condition producers take a very optimistic view of the situation. Quotations on Water Pipe are firm at the following figures per net ton: 4 to 6 in., \$35; 8 to 12 in., \$33; over 12-in., average \$31, with \$1 per ton extra for Gas Pipe.

Officials of the United States Cast Iron Pipe & Foundry Company, including President G. B. Hayes of New York and Vice-President George Long, have been in the district during the past week inspecting the various plants and express themselves as highly pleased with existing conditions.

**Old Material.**—The market continues weak, with little or no demand for Wrought. Inquiries for Heavy Melting Scrap are somewhat more numerous, but sales as a usual thing have been confined to small lots. Quotations are approximately as follows per gross ton, f.o.b. cars here:

Old Iron Rails.....	\$20.50 to \$21.00
Old Iron Axles.....	18.50 to 19.00
Old Steel Axles.....	16.50 to 17.50
Old Car Wheels.....	18.50 to 19.00
No. 1 Railroad Wrought.....	19.00 to 19.50
No. 2 Railroad Wrought.....	14.00 to 14.50
No. 1 Country Wrought.....	14.00 to 14.50
No. 2 Country Wrought.....	12.00 to 12.50
Wrought Pipe and Flues.....	12.50 to 13.00
Railroad Malleable.....	13.00 to 13.50
No. 1 Steel.....	14.00 to 14.50
No. 1 Machinery Cast.....	15.00 to 15.50
Stove Plate and Light Cast.....	11.00 to 11.50
Cast Borings.....	8.00 to 8.50

For cementing leather belts 1 pint of good fish glue should be soaked over night in 1 pint of cold water, and then heated and stirred until the glue is entirely dissolved. One ounce of dry white lead is added, and, after being thoroughly mixed, when nearly cool 1 ounce of grain alcohol is added. The cement should be heated when wanted for use, and brushed on freshly cut surfaces.

## The Coal Trade.

BY FREDERICK E. SAWARD, NEW YORK.

The consumer will pay more for his Bituminous Coal supply this year, on contracts for the forward season and for transient tonnage taken in from time to time. The operators have apparently made up their minds to have a share in the general prosperity, and the railroad companies are determined to get a higher rate of freight for the transportation of Coal. In both instances this falls to the consumer to pay, and it will run from 20c. to 30c. a ton for both items, as the Coal is superior or inferior and the railroad distance great or little. It is the talk of the trade just now that, despite the tonnage produced (and it is larger than usual for this time of the year), there is no great quantity on hand at any point. This indicates a very active business in all lines of industry and the movement of a heavy traffic on the railroads. The delays are great, the day of shipment and the day of receipt being far apart. In fact, excuses for poor transportation service continue to be a prominent feature of the trade news, and the gossip and comment of the trade bear very largely upon this factor. Storm and flood have, of course, added their disadvantages to transportation service, but it almost invariably happens that February is marked by unsatisfactory railroad results. The service, which just manages to keep moving during the earlier part of the winter, often falls to pieces by the time February comes round. There will be a similar story to tell in March, if the users of steam or manufacturing Coal anticipate the advances in freight rate mentioned above, which are scheduled to take effect April 1.

In the smaller sizes of Anthracite Coal as great a shortage as ever prevailed exists. Spot Coal in pea and buckwheat sizes is practically out of the market, nor can buyers get any satisfactory statement from the shippers as to future supplies. This has caused a great deal of loss and inconvenience to contractors who have tried to fulfill obligations on those sizes. Fancy prices are demanded on what little free Coal comes into the market, whether the quality be good or bad. The large consumers are scouring the market to secure boatloads, paying, in most cases, without hesitation the price asked. Pea Coal a week ago was worth \$2.90 to \$3. f.o.b. The latest quotations are \$3.30, and give promise of going higher. Buckwheat, a week ago offered at \$2.40 to \$2.50, is now \$2.75. Rice is not as short, however, but prices have advanced nearly as rapidly, and it is now quoted at about \$1.90 to \$2. f.o.b. Barley has not advanced so sharply, ruling at about \$1.50.

The traffic on some of the West Virginia roads is about as bad as can well be imagined, and has no possibility of betterment in the near future. The operators there have taken many contracts that should be filled before April 1, and the railroads are simply swamped with business, so that any little interruption makes the situation very bad. The detention at Norfolk and Newport News is said to be great, so much so that the barges engaged in the coastwise trade are coming to the New York ports for cargoes. The result is that there is no "free Coal" at any point. Cargoes at the Kill von Kull points are now made up of more than one company's Coal, if the reports which come in are to be credited.

The new car dumping machine and steaming plant at St. George, Staten Island, are working, but are not running smoothly as yet. With Coal under steam 24 hr. a gang of men is required to pick the Coal free, and the cars are turned upside down anywhere from four to six times, with the men picking the Coal after each effort, before the car is finally emptied. The plant will no doubt be a great success with Coal in its ordinary state, and it is likely that shipments from that port will be largely increased by reason of its installation.

Receipts of Soft Coal at New York are extremely light, and as the car supply on all roads is poor and the demand good, prices are likely to be higher a week hence. In fact, the tidewater Bituminous trade is the greatest sufferer from the car supply. Embargo orders existing against Amboy, Greenwich and at Canton Pier, Baltimore, have tied up the Soft Coal trade to a considerable degree. The car supply is estimated at about 50 per cent. of normal. This condition prevails particularly along the Baltimore & Ohio Railroad and at the mines in the western section of Maryland, Pennsylvania and eastern Ohio. Prices have stiffened under weather conditions, and central Pennsylvania grade is selling at \$1.35 to \$1.40 a ton at the mines. The necessity for embargo orders being kept in force is due largely to the railroads, whose facilities for unloading Coal at tidewater are not sufficient in severe weather. Cars of Coal arrive there covered with snow, and they soon freeze up so tightly that they cannot be dumped with any degree of speed. The continued delay has caused the yards to be overcrowded, and then the railroads have been compelled to place embargo orders. Warmer weather only will relieve the situation.

Present prices at the mines per ton of 2000 lb., for prompt delivery, may be quoted as follows:

## Pennsylvania Railroad Coals.

Georges Creek.....	\$2.00
Best Miller vein.....	1.60
Good Miller and Moshannon.....	1.25
Best gas coal, three-quarter lump.....	1.70
Best gas coal, run of mine.....	1.60
Best gas coal, slack.....	1.10
Ordinary Clearfield.....	1.25
Ordinary Latrobe.....	1.25

## Baltimore &amp; Ohio Coals.

Georges Creek.....	\$2.00
Best Somerset.....	1.50
Somerset.....	1.25
West Virginia Freeport.....	1.15
Fairmont District, three-quarter lump.....	1.30
Fairmont District, run of mine.....	1.25
Fairmont District, slack.....	1.10

Anthracite steam sizes at New York loading ports may be quoted as follows per ton of 2240 lb.:

Size.	Lehigh.	Free burning.
Pea.....	\$3.80 to \$3.95	\$3.30 to \$3.40
Buckwheat.....	2.70 to 2.75	2.75 to 2.80
Rice or No. 2 Buckwheat.....	1.95 to 2.00	1.95 to 2.00

Individual and Washery Pea, \$3 to \$3.25; Washery Buckwheat, \$2.70 to \$2.75; Washery Rice, \$1.95 to \$2; Barley, \$1.45 to \$1.50.

Prices quoted for Lehigh Coals are for ordinary brands; special Coals will range 25c. to 30c. higher. Free burning prices are for Coal from companies; individuals and middlemen may charge 10c. or more additional.

## Metal Market.

NEW YORK, February 27, 1907.

**Pig Tin.**—Trade has been the duller of any week this year, and during parts of some days was practically at a standstill. On the 21st Tin sold at 41.95c. The next day was a holiday, but some business was done on Saturday at 42.40c. and 42.30c. On the 25th sales were made at 42.05c. to 42.15c., with business for out of town delivery ruling considerably higher, owing to the expense of trucking in New York. On the morning of this day sales were made as high as 42.30c. On the 26th business was again dull and sales were made at 42c. to 42.12½c. To-day Tin can be had at 41.90c. Arrivals during the week have been light, and the total imports so far this month amount to 1915 tons. There are afloat for American ports 3661 tons, of which about 900 tons will arrive this month. The London market is again lower to-day, closing at £191 10s. for spot and £190 5s. for futures.

**Copper.**—Sales of small lots of Copper have been made at advancing prices, and it is significant to note that some of the largest consumers have been compelled to buy small lots of 5000 to 10,000 lb. from retail dealers and pay exceptionally high premiums. Calumet & Hecla Copper is almost unobtainable. Other high grade Lake is very difficult to secure. Sales of large lots of Electrolytic have been made in Europe on a basis of 25½c. Considerable business has been placed for future shipment, especially for April and May. Premiums for nearby deliveries continue to increase, but future business can be placed at 25.12½c. to 25.37½c. for Lake, 24.87½c. to 25.25c. for Electrolytic and 24.50c. to 25c. for Casting Grades. It is also claimed that some little business has been placed for June. It is extremely doubtful, however, if any large tonnage has been contracted for for delivery during that month. The present high prices of Copper are responsible for the curtailment in the demand for smaller electrical supplies. This has only recently been noticed by manufacturers, but it is stated that it is growing. Difficulties in making and marketing Copper continue to grow worse rather than better. It is stated that the Granby Company has only half its plant in operation. The export situation is interesting. For the first 26 days of this month exports were but 7379 tons. For the first time since this country became an important producer of Copper the imports have exceeded the exports. All this metal, however, has been needed to supply the legitimate demand from American consuming interests. The European markets are firmer and very active to-day, spot closing at £108 5s., futures at £109 7s. 6d., with Best Selected at £114 10s.

**Pig Lead.**—This metal is very scarce, and the American Smelting & Refining Company is unable to accept orders except for late May shipment. This enormous booking of orders has been obtained in spite of the fact that the company continues to accept orders only at price current on date of shipment. Carloads of spot Lead command 6.35c. in New York, and shipments can be had on a basis of 6.25c. The St. Louis market is unchanged, at 6.10c. In London the price is likewise unchanged, closing at 19s. 10d.

**Spelter.**—There are evidently cross currents in the Spelter market. We learn of some prices named a trifle easier than those prevailing a week ago, while in other quarters prices quoted are an advance over those of last week. Spot can be had at 7c., and 6.77½c. has been quoted for shipment from St. Louis, while in other quarters forward shipments have been held at 6.85c. There is little business doing at any figure.

**Antimony.**—There seems to be no doubt of the fact

that all of the importers and many of the dealers have large stocks of Antimony on hand. We learn of a quotation of 23½c. made for Cookson's to arrive. For small lots of Cookson's 25½c. is asked; Hallett's, 24½c., and other brands, 23½c. to 24½c. Some of the larger importers have asked their European correspondents to delay shipments as much as possible.

**Ferroalloys.**—Ferromanganese continues firm. Prompt deliveries are held at \$73 to \$75 per ton, f.o.b. Pittsburgh. For second half deliveries business can be done at \$71 to \$73, f.o.b. Pittsburgh. The demand for Ferrosilicon is excellent; there is little spot in dealers' hands, and nearby deliveries of 50 per cent. are held at \$110, while 75 per cent. Ferrosilicon is unchanged, at \$150. Ferrochrome is practically unchanged, being quoted at \$160 to \$200, the price varying according to the Carbon and Chromium contents.

**Tin Plates.**—There is a good demand for Coke Plates and the Terne Plate business has exceeded expectations. The price, though firm, is unchanged, at \$4.09, f.o.b. New York, and \$3.90, f.o.b. Pittsburgh. For third quarter deliveries premiums of 10c. per box prevail. In Swansea Welsh Plates are 1½d. higher, at 14s. 7½d.

**Old Metals.**—Business continues dull and dealers' selling prices are unchanged, as follows:

	Cents.
Copper, Heavy Cut and Crucible.....	23.50 to 24.50
Copper, Heavy and Wire.....	22.50 to 23.50
Copper, Light and Bottoms.....	20.50 to 21.50
Brass, Heavy.....	16.25 to 17.00
Brass, Light.....	13.25 to 14.00
Heavy Machine Composition.....	21.00 to 21.75
Clean Brass Turnings.....	14.75 to 15.50
Composition Turnings.....	17.75 to 18.50
Lead, Heavy.....	6.00
Tea Lead.....	5.70
Zinc Scrap.....	5.00

## New York.

NEW YORK, February 27, 1907.

**Pig Iron.**—The market has been without any notable features. There has been a moderate amount of buying of spot Iron, on the basis of a shade under \$24 at Lehigh furnaces, and upward. There is some Middlesbrough Iron afloat and the prices at which it is offered vary considerably. The only inquiry of consequence for foreign Iron now in the market is for 1500 to 2000 tons for an agricultural implement plant in this State. It is to be used for export work. Since there is a good deal of latitude as to deliveries some low prices have been made on it. Basic Iron is scarce and the Steel works are eager to get what they have bought. The market for forward delivery of Foundry Iron has not been seriously tested lately. We quote spot Northern Iron, in small lots, \$25.50 to \$26.50 for No. 1 Foundry, and \$24.50 to \$25 for No. 2 Foundry. For the second quarter we quote \$25 to \$26 for No. 1 Foundry, \$23.50 to \$24 for No. 2 Foundry and \$23 to \$23.50 for No. 2 Plain. For the second half we quote \$23 to \$23.50 for No. 2 Foundry.

**Steel Rails.**—Orders have been exceptionally light in the past week, nothing being reported beyond a total of 8000 tons for trolley lines. Deliveries in the third quarter are now only possible for limited tonnages, and some mills have considerable space pre-empted for the fourth quarter. Indications are that foreign business will get prompter deliveries than were possible in the summer and fall of 1906, when a number of domestic mills were unable to bid on any export tonnage.

**Structural Material.**—Producers of Structural Shapes continue to refer to the good rate at which specifications are coming in, all the mills being comfortably filled, while some feel the pressure, in view of the necessity of prorating their steel among their various finishing departments. An important shop contract let in the week was for 3200 tons of Steel which will enter into the Grand Trunk Western Railway's new shops at Battle Creek, Mich. This was taken by the American Bridge Company. For shop extensions of the Pennsylvania Railroad at Altoona, Pa., a contract for 1300 tons of Steel has been taken by the Pennsylvania Steel Company. The New York, New Haven & Hartford Railroad has received bids this week on 2000 to 2500 tons of bridge work, in addition to 1800 tons reported a short time ago. For the bascule bridges to be built over the Indiana Harbor Canal and to be used jointly by a number of railroads about 900 tons of Steel was required, the contract being taken by the Strobel Bridge Company. The Seneca Iron & Steel Company, which is building a new Sheet mill at Buffalo, let the contract for 500 tons of erected Steel to the Riter-Conley Mfg. Company, Pittsburgh. One of the largest pending jobs is the new Corn Exchange Bank Building at Chicago, for which 6500 tons will be required. The bids are in, but the award has not yet been made. A tonnage approximating 7500 will shortly come to the books of the American Bridge Company for the extensive warehouse erection of the United States Steel Corporation at Waverly, near Newark, N. J. The main warehouse will require 5200 tons, and the balance of 2300 tons will be divided between the bar warehouse and the power house.



There will be some additional building at this point later. With the above contract the American Bridge Company's February bookings will be in the neighborhood of 40,000 tons. We continue to quote mill shipments, tidewater deliveries, as follows: Beams, Channels, Angles and Zees, 1.84½c.; Tees, 1.89½c.; Bulb Angles and Deck Beams, 1.99½c. On Beams 18 to 24 in. and Angles over 6 in. the extra is 0.10c. Sales are made from stock of material cut to length at 2¼c. to 2½c.

**Bars.**—The Bar Iron situation is strong. The Eastern rolling mills have so well succeeded in taking contracts covering their product for the next two or three months that the old practice of basing quotations at a certain price, f.o.b. Pittsburgh, has now been quite generally changed to quoting at Eastern mill. The basis on which sales are now being made is from 1.80c. to 1.85c., at mill, and the higher price has grown to be quite common. A large tonnage is reported to have been sold by an Eastern rolling mill for delivery in the Pittsburgh District at 1.80c., f.o.b. its works. The range of prices for local delivery is now 1.90c. to 1.95c., tidewater. At a meeting of the Eastern manufacturers of Bar Iron in this city last week it was decided to abolish the differentials on quantities recently adopted. It was found that too much dissatisfaction was caused among consumers. The demand for Steel Bars is heavy, and while 1.60c., Pittsburgh, remains as the nominal quotation this price is only named on orders placed for deliveries several months hence, and those who desire reasonably early shipment are obliged to pay 1.84½c., tidewater, or higher.

**Plates.**—The local market continues quiet, but the Eastern mills are apparently not concerned over this situation, as they are well supplied with contracts and firmly maintain their prices. The range of quotations for tidewater delivery, taking the low price in forward deliveries of Western mills and the much higher rate made by Eastern mills, is as follows: Sheared Tank Plates, 1.84½c. to 2.14½c.; Flange Plates, 1.94½c. to 2.24½c.; Marine Plates, 2.24½c. to 2.44½c.; Firebox Plates, 2.75c. to 3.50c., according to specifications.

**Old Material.**—Heavy Cast Scrap, Stove Plate, Old Car Wheels; Cast Borings, Heavy Steel Turnings and Heavy Melting Steel Scrap are in active demand and command full prices. The prediction has been verified which was made in this report several weeks ago regarding possibilities in connection with the large quantities of Heavy Melting Steel Scrap then sold by various brokers who expected prices to go a little lower. These sales and the efforts to cover them have been the cause of a decided change in conditions. Instead of Steel Scrap prices receding they are to-day as high, if not higher, than at any time for the past three months. Some consumers having such contracts are pressing for the delivery of the material, and the brokers are experiencing decided difficulty in securing enough to meet the present requirements of the buyers. No stocks of Heavy Steel Scrap for prompt shipment are available in this market, and practically nothing is to be had for shipment within possibly three months. The ordinary accumulations, which are rather light, are disposed of as rapidly as picked up. This may also be stated to be the case with Cast Borings, Heavy Cast Scrap, Stove Plate and Heavy Steel Turnings. Very little of any of these grades can be had for shipment in the next two or three months. The only grade of Scrap more or less neglected is No. 1 Yard Wrought, and even this is likely to move in the near future, as all the principal buyers of this grade have been out of the market for some three months. It is remarkable that its price has kept up so well in view of the fact that so little buying has been done for so long a period. Quotations per gross ton, f.o.b. New York, are as follows:

Old Girder and T-Rails for Melting	\$16.25 to \$16.75
Heavy Melting Steel Scrap	16.25 to 16.75
Old Steel Rails, rerolling lengths	18.50 to 19.50
Relaying Rails	28.00 to 29.00
Old Iron Rails	24.00 to 25.00
Standard Hammered Iron Car Axles	28.50 to 29.00
Old Steel Car Axles	20.50 to 21.00
No. 1 Railroad Wrought	20.50 to 21.00
Iron Track Scrap	18.00 to 18.50
No. 1 Yard Wrought, long	18.50 to 19.00
No. 1 Yard Wrought, short	17.50 to 18.00
Wrought Pipe	14.50 to 15.00
Light Iron	11.00 to 11.50
Cast Borings	12.00 to 12.50
Wrought Turnings	14.50 to 15.00
Old Car Wheels	22.50 to 23.00
No. 1 Heavy Cast, broken up	19.00 to 20.00
Stove Plate	16.00 to 16.50
Grate Bars	14.00 to 14.50
Malleable Cast	18.00 to 19.00

**Cast Iron Pipe.**—The American Water Works & Guarantee Company, Pittsburgh, which was stated last week to be in the market for 7000 tons, will close for probably the whole of this quantity on Friday. Springfield, Mass., will open bids on Saturday on 2100 tons of 6 to 36 in. Pipe. February is usually one of the quietest months in the Pipe trade, but this year is an exception, as the inquiry continues very good and orders are steadily being placed for small to good sized quantities. Gas companies in numerous localities are in the market for 500-ton lots or more. The outlook continues decidedly favorable for a very good year. It is

understood that New York City will purchase considerably more Pipe than usual for its season's requirements. Prices continue firm, on the basis of \$35 to \$36 per net ton for 6-in., at tidewater.

The firm of Dalton, Nash & Co. has been dissolved, F. A. Dalton retiring. The business will be continued at 82 Beaver street, New York, by the firm of Nash, Isham & Co., of which A. L. Nash and Phillips Isham will be partners. Mr. Nash was with J. W. Quincy for years, until in 1901 he formed the partnership with Mr. Dalton. Mr. Isham was for 11 years in the New York office of Rogers, Brown & Co., in charge of the business in the New York territory and of all export and import business. Nash, Isham & Co. will represent the same companies: Low Moor Iron Company of Virginia, Southern Steel Company, Woodward Iron Company, Richard Heckscher & Sons Company, Franklin Iron Mfg. Company and Hostetter Connellsville Coke Company.

## Iron and Industrial Stocks.

NEW YORK, February 27, 1907.

The stock market, which had been quite firm on Thursday, preceding the two holidays on Friday and Saturday, was seriously disturbed on Monday by an outpouring of stocks forced for sale through fears that developments in the Union Pacific investigation by the Interstate Commerce Commission might be likely to shake public confidence. Prices dropped to lower points than had been touched for the previous week or two. Some recovery occurred on Tuesday, but another spell of weakness developed to-day. Taking the period covered, from Thursday to Tuesday, the range of prices on active industrials was as follows: United States Steel 43½ to 45¼, preferred 103¼ to 104¾; Car & Foundry common 43 to 45; Locomotive common 71 to 74¼; Steel Foundries preferred 42½ to 43; Colorado Fuel 42½ to 48½; Pressed Steel common 48 to 51½; Railway Spring common 51½ to 52½; Republic common 32¼ to 35, preferred 97 to 98½; Tennessee Coal 149 to 150; Sloss-Sheffield common 66 to 67½; Cast Iron Pipe common 44¾ to 46; Can preferred 54 to 55. Virginia Iron, Coal & Coke sold down to 71 on Tuesday, showing a heavy recession from its recent meteoric advance nearly to par. It closed on that day at 73½. Last transactions up to 1.30 p.m. to-day are reported at the following prices: United States Steel common 43¾, preferred 103¾; Car & Foundry common 43¼, preferred 102¾; Locomotive common 72; preferred 110½; Steel Foundries common 8½, preferred 42½; Colorado Fuel 42½; Pressed Steel common 49, preferred 97¼; Railway Spring common 51¼; Republic common 32¾, preferred 97¾; Sloss-Sheffield common 68; Tennessee Coal 149; Cast Iron Pipe common 44¾, preferred 86¾; Can common 6, preferred 54.

The American Can Company has applied to the New York Stock Exchange to list \$41,233,300 preferred and \$41,233,300 common stock.

Control of the Virginia Iron, Coal & Coke Company, of which Henry K. McHarg has been president since the reorganization of the company in 1902, has been placed in the hands of voting trustees for a period of five years, which may be extended for two years longer on the vote of a majority of the holders of voting trust certificates. The voting trustees are Walton Ferguson, Henry K. McHarg and Theodore L. Peters.

At the annual meeting of the stockholders of the Warwick Iron & Steel Company, held in Philadelphia February 15, there were represented in person or by proxy 137,072 shares, and the policy of the managers was indorsed by a large majority. There were re-elected six members of the 1906 Board of Directors by votes ranging between 129,241 and 131,152. By the system of cumulative voting the opposition elected the seventh director, George E. Schlegelmilch.

**Dividends.**—On account of the change in the payment from semiannual to quarterly dividends of the Sloss-Sheffield Steel & Iron Company, the quarterly dividend to be paid on March 1 will be 2½ per cent., instead of 1¼ per cent., which would be the regular payment for three months.

The Nova Scotia Steel & Coal Company has declared a quarterly dividend of 1½ per cent. on the common stock, payable April 1.

An excellent illustration of the pressure which has been upon our mills for many months is furnished by the seamless tube department of the United States Steel Corporation. Last year it was determined to concentrate the manufacture of seamless tubes at Ellwood, Pa. It was proposed to move there the machinery at the Greenville and Shelby plants. Such was the demand, however, that the work of removal could not be begun. Recently it has been decided that the machinery at Greenville and Shelby must be kept running, and that it is wiser to put in additional new machinery at Ellwood, which it is expected will be paid for by continuing full work at the old plants.

### Recent Customs Decisions.

#### Steel Forgings Defined.

It was decided February 20 by the United States Circuit Court that customs classification as "forgings" cannot be granted to steel crank shafts, crank axles, connecting rods, crank pins, cross heads and piston rods for engines which were forged and subsequently finished, or nearly finished, in the machine shop.

The decision, which is by Judge Hazel, is not only adverse to the contentions of the importers, Thomas Prosser & Son, New York, relative to the classification, but also fails to uphold a plea of illegality alleged against the action of the Board of General Appraisers when the protest was before that tribunal. The board had formulated a rule calculated to prevent the rendering of decisions in conflict with former rulings. In pursuance of this regulation, jurisdiction was taken from a subboard of general appraisers which was about to promulgate a decision in favor of the importers and the case assigned to another subboard, in this instance No. 1. This subboard brought in a decision against the importers. The decision was written by General Appraiser Lunt. Judge Hazel now affirms the General Appraiser in every respect. The court says:

I cannot see any difficulty in investing another board with jurisdiction where, for example, the original board is unable to agree or where the orderly conduct of the business or disposition of the protest may so require. The reasonableness of a rule or regulation which tends to avoid or lessen conflicting decision by the board, or which points out the way to consistent adjudications of litigated questions, is to be commended. That such rule or regulation has the force of law if legally authorized and promulgated needs no citation of authorities. The objection to the jurisdiction of Board No. 1 is overruled.

It was held by the Board of Appraisers and now by the Circuit Court that immediately upon work being done on a forging with a machine tool the article loses its classification as a forging and becomes a manufactured or partly manufactured article. Accordingly, it is decided that the articles under protest are properly dutiable as manufactures of steel not specially provided for, with assessment at the rate of 45 per cent., and not at 35 per cent. as forgings, as contended by the importers.

#### Steel Drills.

The Board of United States General Appraisers, in a decision by I. F. Fischer rendered February 23, overruled a claim filed by F. B. Vaudegrift & Co., Philadelphia, it being held that steel drills are properly assessed with duty at the rate of 45 per cent. under the provision in the tariff for manufactures of steel. The articles were claimed by the importers to be dutiable at 4 7-10 cents per pound as "steel in all forms and shapes." In view of the fact that the local appraiser found the articles to be fully finished steel twist drills, the board is under the necessity of affirming the higher rate of duty.

#### Automobiles and Tires.

Importers of automobiles are making an energetic attempt to secure from the Board of United States General Appraisers a reversal of an order issued last summer by Collector Stranahan, in which it was directed that the long standing practice of the Government in assessing automobiles and their tires separately be discontinued and the entries taxed as entireties.

The Customs House authorities notified importers that unless separate invoices are made out for the cars and for the tires the rate of duty, 45 per cent., applicable to automobiles would be levied on the imports. Since the new rule went into effect a great many invoices covering cars and tires have been entered at New York which failed to comply with the requirements imposed by the collector. The Auto Import Company, the American Locomotive Company and many other foreign car importers are directly interested in the pending litigation, which, if favorable to the protestants, will mean the recovery of a large sum in the shape of excess duties paid the Government.

Several hearings have been held at the offices of the board. The testimony adduced by the importers showed that while tires may accompany cars it is optional with the ultimate purchasers of the machines what kind of tires shall be put on the automobiles. The board was

also told that the tire manufacturing industry is distinct from the manufacture of automobiles, and that consequently this fact should be recognized in assessing duty. The customs tribunal is asked to reverse the collector and require the authorities to exact duty on the machines at 45 per cent. and on the tires as manufactures of rubber at 30 per cent.

On the other hand, counsel for the Treasury Department argued that the rule established by the Custom House should be adhered to and duty taken on the cars as entireties. The record of the testimony taken has been placed in the hands of General Appraiser Fischer, who will shortly promulgate a decision for the board. Both sides state that the controversy will be carried into the United States courts.

### The Bethlehem Apprentice System.

The Bethlehem Steel Company, South Bethlehem, Pa., has established a thorough apprentice system and offers openings for boys and young men of 16 and over to learn very useful and profitable trades. President Archibald Johnston, writing on this subject, says:

"The present day need of intelligent trained mechanics, metal workers, and artisans generally is so great that thinking people are only too anxious to see their sons safely placed in some such establishment as that of the Bethlehem Steel Company, where the variety of trades taught comprises almost every one for which boys and young men are suitable. These courses embrace thorough instruction in the rudiments of each trade, leading up through every detail until the apprentice is turned out a competent, finished artist in his particular line.

"Among the long list of trades taught the following are the most interesting: Brass molding, both bench and floor work; iron molding, both bench and floor work; green sand and loam molding; steel molding, bench and floor; green sand and matrix molding; blacksmithing, both anvil and structural; pattern making in all its branches; bricklaying of all kinds, and, in addition, something that few bricklayers ever get a chance to learn—that is, the laying of fire brick and the manipulation of fire clays in the building up of furnaces; carpentry, in both the ordinary work of carpenters and the finer work closely allied to cabinet making; electric wiring, care of dynamos and batteries, electric motors and electric machines; steam-fitting in its most complicated forms, from the smallest 1/8 in. pipe up to huge sizes carrying hundreds of pounds pressure; tool making, comprising the making of the almost infinite variety of tools used on the different machines throughout the whole vast establishment.

"Armor plate making and projectile making are two of the apprentice courses. Every American is intensely interested in our splendid navy and knows what this means; and when people talk of the man behind the gun they think of the man that made the gun and the man that made the armor, too.

"The company further offers a chance for its bright boys to take up the study of drafting—the making of sketches, drawings and designs for which the machines, tools, guns and armor, patterns and moldings are made.

"The course is designed to turn out skilful, well trained high grade mechanics—not mechanics merely, but intelligent, high grade experts who have received the finest technical training that can be obtained, either here or in Europe: who know tools and how to use them; who know machines and machinery and how to make them and how to run them, too; experts who understand designs, sketches and drawings, who have been drilled in every detail of their art and are masters of their craft.

"In addition, the welfare of the apprentices in every line of work is under the special charge of a separate department, which watches jealously over the progress and wellbeing of each individual apprentice."

While it was given out at the time of the last convention of the National Founders' Association that the headquarters of the association would be removed from Detroit to Chicago, the Detroit offices are still retained, and it is now considered unlikely that the change will be made.



### San Francisco's Improved Demand for Structural Steel.

SAN FRANCISCO, February 20, 1907.—The demand for structural steel this year will be much greater than at one time supposed. For a while after the fire there were great projects for rehabilitation, and among them that of filling that part of the city between Jones street and the Bay with tall buildings was most conspicuous, but it did not take long to disillusionize the people and gradually such projects were forgotten. A few were planned, and work was begun gradually. First were the edifices that were only partially destroyed. Then contracts for a few new ones were given out. But during the month of January the number has greatly increased, and now the average is about four a week. Should this keep up the demand for structural steel will far exceed anything anticipated. The generality of the high buildings for which contracts are being made run from 6 to 10 stories, with about eight as the average. The contract price runs from \$100,000 to \$400,000, averaging about \$200,000. Most of the new structures will be on Market street, or near it in a northerly direction, and the workmen are busy putting in the foundations of several along the great central thoroughfare of the city. The City Hall is being reconstructed, all the damaged brickwork having been pulled down, leaving the steel framework exposed in the air like a grim skeleton. Very little, however, will have to be done to this part of the structure, which looks as well as when it was first put up.

A stimulus has been given to construction in general and to steel frame construction in particular by the discovery by property owners of the disposition on the part of the people to come back to the old locations as fast as they are given the opportunity. For a while it was thought that there would be some radical changes in trade locations, but this idea has almost altogether passed away. A great impetus has also been given to the reconstruction of the destroyed residence districts, and hundreds of rows of flats are now going up or approaching completion in the Mission section, south of Market street and west of Third street and all along the northern side of the city from Jackson street to the bay. These houses consist of two to nine flats each, averaging about three. These have been badly wanted.

The month of January was, comparatively speaking, a dull one in all lines of business, on account of the heavy and continued rains, which lasted for almost the whole month, putting a stop to building operations and affecting transportation by sea and land. Vessels were bar bound, and the trade carried on by the coasting steamers at this season of the year was considerably lessened. The condition of the streets was so bad that it was difficult to transport merchandise to and from stores. But we have had fine, warm days now for over a week, and business has revived. We have received considerable building material, hardware, &c., by rail for the past couple of weeks. Comparatively little has come by sea for a long time, except cement, of which over 1,000,000 barrels have been received from Europe since April last. It is now quoted at \$3.10, duty paid, in this market.

J. O. L.

### An Ore Company for the Rogers-Brown Interests.

The Rogers-Brown Ore Company was recently organized under a West Virginia charter, with a capital of \$1,000,000. Its headquarters are at Chicago, with offices in the Monadnock Block. The object of the company is stated to be exploring, developing and mining iron ore properties and doing a general ore business. The Lake Superior ore interests represented are those of the Iroquois Iron Company, Chicago; Cleveland Furnace Company, Cleveland, Ohio; Tonawanda Iron & Steel Company, Buffalo, N. Y.; Punxsutawney Iron Company, Punxsutawney, Pa.; Hanging Rock Iron Company, Hanging Rock, Ohio. The officers are as follows: President, Samuel A. Kennedy, general manager Iroquois Iron Company, Chicago; vice-president, D. T. Croxton, president Cleveland Furnace Company; secretary and treasurer, E. L. Billingslea, Rogers, Brown & Co., Chicago. The Board of Directors consists of D.

B. Gamble, Proctor & Gamble, Cincinnati; W. A. Rogers, president Buffalo & Susquehanna Iron Company, Buffalo, N. Y.; D. B. Meacham, vice-president Cleveland Furnace Company; M. C. Armour, president Iroquois Iron Company, Chicago; Joshua Monroe, treasurer Punxsutawney Iron Company; D. T. Croxton, and Samuel A. Kennedy.

### Labor Notes.

The 3 per cent. rebate in wages of tin plate workers in union mills of the Amalgamated Association, which heretofore has been turned over to the American Sheet & Tin Plate Company, on orders for tin plate for export, has been discontinued, the heavy domestic demand practically prohibiting the company from filling such orders. The fund thus accumulated remains with the Amalgamated Association, but until conditions change by which the American Sheet & Tin Plate Company will again seek the trade of the exporting canners the assessment will no longer be made.

An arrangement has been made by which foundries in the Youngstown and New Castle districts will do work for the Youngstown Sheet & Tube Company, Youngstown, Ohio, which maintains an open shop. Heretofore outside foundries refused to make castings for that company.

The members of the International Association of Machinists are balloting on a proposed demand upon the machine shops in the principal cities which, if made, will be effective May 1. It is understood that the eight hour day will not be asked for, and that the question of hours will not be brought up except in a few localities. It is probable that a less number of hours will be a feature of the demand at Lynn and Worcester, Mass. In New York City and at several important points in the West and Central West, an advance in wages will probably be asked for. The American members of the Amalgamated Society of Engineers, which has its headquarters in Great Britain, are also expected to make demands in the coming spring. This organization has some lodges in Chicago and at a few other points in the United States, but is stronger in Canada.

The strike of molders and coremakers which started at the foundry of the Canadian Iron & Foundry Company, Hamilton, Ont., on August 29, 1906, has been called off. Only two or three out of 45 strikers have as yet secured positions. At St. Thomas, Ont., the local union of molders and coremakers has given up its charter.

The last chapter in the strike of last year at the Pope Motor Car Company's plant, Indianapolis, Ind., was a levy last week by United States marshals on property of five of the strikers who violated the Federal Court's injunction in May, 1906. The levy was made to satisfy the court judgment against them, amounting to \$900. The property will be sold and the court judgment taken from the proceeds.

A molders' and coremakers' strike is on in one Davenport, Iowa, foundry, and in three Moline, Ill., shops, involving in all about 75 men. The four firms, which are members of the National Founders' Association, require that all employees sign individual agreements.

At Baltimore, Md., 350 to 400 employees of eight boiler and shipbuilding firms went out on strike last week for an increase of 10 per cent. in wages and recognition of the union. The strikers are members of the Union of Boilermakers and Iron Shipbuilders of America.

Morris S. Mayer, formerly connected with the Interstate Iron & Metal Company, Mayer Fertilizer & Junk Company, and the G. Mathes Sons' Rag Company, all of St. Louis, has established himself in 700 Carleton Building, St. Louis, in the wholesale metal, scrap iron and rubber business.

### Aid for Metal Refineries in Ontario.

TORONTO, February 23, 1907.—A measure to encourage the domestic refining of metals has been introduced into the Ontario Legislature by Mr. Cochrane, the Minister of Lands, Forests and Mines. It empowers the Provincial Treasurer, under regulations that may from time to time be made by the Lieutenant-Governor-in-Council, to pay bounties on metals or compounds when refined in Ontario from ores mined in the Province. The bounties are to be as follows:

On refined metallic nickel or refined oxide of nickel, 6 cents per pound on the free metallic nickel or on the nickel contained in nickel oxide. When a bounty is paid on nickel in one form it will not be paid on any other form, and this applies to other minerals. The aggregate of this bounty in any one year must not exceed \$60,000.

On refined metallic cobalt or on refined oxide of cobalt, 6 cents per pound on the free metallic cobalt or on the cobalt contained in the oxide of cobalt. The aggregate of the bounty is not to exceed \$30,000 a year.

On refined metallic copper or on refined sulphate of copper, 1½ cents per pound on the free metallic copper or on the copper contained in the sulphate of copper; or on any copper product carrying at least 95 per cent. of metallic copper, ½ cent per pound. This payment of the bounty must not entail an expenditure of more than \$60,000 in all.

On white arsenic, otherwise known as arsenious acid, produced from mispickel ores and not from ores carrying smaltite or niccolite or cobaltite, ½ cent per pound. The total of the payments of this bounty must not exceed \$15,000.

If the output of domestic refineries is so great that the total approximation under any head is not sufficient for the maintaining of the prescribed rates of bounty, then the appropriation under that head shall be divided pro rata among the producers of the given metal.

It is a further condition of this bounty law that, to be entitled to its benefits, owners and operators of refining works must be prepared and willing to treat ores belonging to other parties at rates and on terms approved by the Lieutenant-Governor-in-Council, or to purchase such ores at current market prices.

At present the complex and refractory ores of the Cobalt mining field are for the most part shipped to reduction works in the United States. The freight charges are as high as the railroad companies can make them on that high-class freight and are consequently a large element in the cost of treatment. More than that, shippers of ore maintain that in the refined product returned or credited to them, or in the price paid to them, cobalt, arsenic and the other valuable contents associated with silver in the ore are not reckoned. That is, they say that they get back from the American refineries nothing but the value of the silver contained. To relieve the miners from the freight charges and the possible waste in American refineries, and also to secure the Province the benefit of new industries, the Government drew up and presented this bill, which will become law in a form not materially different from that in which it now appears.

Besides promoting the development of works for the refining of the Cobalt ores, the bounty will be an inducement to the International Nickel Company (the Canadian Copper Company) to treat exhaustively at its Ontario works all the output of its Sudbury mines. Already the company carries the process so far as to produce a matte carrying 80 per cent. of metal. It is smelting ores from Cobalt as well as Sudbury ores.

The revenue from which the bounty money is to be derived is to be yielded by new mineral land and mining output taxes, provided for in another bill the Minister has introduced. Mr. Cochrane was urged by one of the New Ontario members to include Bessemer iron ore in his bill, but the Minister could not see his way to do so.

Besides the refining works projected in Hamilton and those for which several towns on the Niagara peninsula and those on which construction was begun last summer in the neighborhood of North Bay—all of which have been referred to in previous issues of *The Iron Age*—others are to be built if the plans now submitted are carried out. The North Ontario Mining & Reduction Company, with a capital of \$500,000, has been formed. O. L. Young of Idaho is said to be connected with it. He was in Toronto a short time ago and is supposed to have interviewed the Government on the subject of Provincial aid

just before the bounty bill was introduced. W. R. Holman, B. Walker Leyson and H. Hastings are the names of other Americans in the company. The plant is to be of a capacity to treat at least 50 tons per day. Sturgeon Lake is spoken of as the place in which the works are likely to be located.

H. Moggly, manager of a reduction plant at Rapid City, S. D., is reported to be considering the establishment of a \$1,000,000 plant in Ontario, preferably at Parry Sound.

That there will be no lack of ore output to be treated is promised by the preparations now being made to operate mines in the Cobalt District. A very large quantity of mining machinery has been ordered within the last few months. Compressors, drills, power boilers and other outfit are in strong demand. Canadian manufacturers get the benefit of this demand, as there is adequate protection on all mining machinery except such as is not made in Canada, which is temporarily free of duty.

A French company is in communication with the municipal authorities of Toronto in reference to the proposed establishment here of a branch of its Paris works for the manufacture of mining drills and other mine-working tools.

C. A. C. J.

### Freight Rate Advances Impending.

A Cleveland dispatch, under date of February 26, states that an average increase of 10 per cent. on the freight rates on iron and steel articles has just been decided on by the railroad companies that are directly engaged in this kind of traffic. The dispatch continues: "Several increases will become effective in March, others between April 1 and April 15, and others between May 15 and June 1. The changes in schedules have been figured out at a joint meeting of the Cleveland, Pittsburgh, Buffalo, Wheeling and Youngstown committees, which are still in session in Pittsburgh. There will be a withdrawal of special traffic rates on iron and steel articles, restoring them to official classification of the fourth and fifth classes. This means an advance from 16 cents to 18 cents per 100 lb. from Pittsburgh to Chicago and a similar advance to New York. These committees form a subcommittee of the Central Freight Association and were called together by executive officers after a meeting held by them last week in New York."

**The Growth of Canadian Pig Iron Production.**—The table below shows the production of pig iron in Canada in 1906 and the previous 12 years in gross tons. The production of last year doubled that of two years previous:

1894	44,791	1901	244,976
1895	37,829	1902	319,557
1896	60,030	1903	265,418
1897	53,796	1904	270,942
1898	68,755	1905	468,003
1899	94,077	1906	541,957
1900	86,090		

In 1906 Canada had 13 blast furnaces in blast. In the first half of 1905 the number was 13, and in the second half 12.

Cammell, Laird & Co., Limited, Sheffield, England, recently made the first shipment of iron ore—4300 tons—from the Mines de Sierra Minera in Teruel, northeast Spain, in which the company is largely interested. The property is estimated to contain from 70,000,000 to 100,000,000 tons. The port of Sagunto is 120 miles distant and a railroad is now under construction. The shipments this year are expected to amount to 600,000 tons and next year to 1,000,000 tons. It is stated that considerable contracts have been made with consumers of ore in England, Germany and the United States. The ore is a hematite, containing 57 to 58 per cent. of iron, 4 per cent. of silica and traces of phosphorus and sulphur.

Furnace No. 7 of the Lackawanna Steel Company, Buffalo, N. Y., which made its first cast on February 14, reached an output of 450 tons a day this week, and is expected to enter March at 500 tons a day.



## The Machinery Trade.

NEW YORK, February 27, 1907.

On account of extended deliveries and the necessity for shopping around to secure machinery, the inquiries come to the front much more prominently than do the orders. Of late very little has been heard of the placing of large orders, which is undoubtedly due to the fact that those desiring to buy a certain sized lot of tools are compelled to scatter their orders to the extent that no one is worthy of especial note. Thus a very large business is being transacted in this district, which causes little comment beyond the fact that it appears to be swelling in volume. Because of the subsiding of the great activity on the part of large buyers some time ago and the absence of further announcements of increase in prices it would appear that business was diminishing, but this is not borne out by inquiries among the trade. The large propositions coming forward are continually increasing the demand for machine tools. While the past week was a short one many fair sized inquiries were received, which, with those not yet closed, cover a large quantity of machinery. There is a large deal under way in this city for a special machine, and in the West several most important propositions are under negotiation, the closing of any of which will mean orders for machinery aggregating a large sum of money.

The fact that the European machinery dealers, and especially German manufacturers, are asking considerably more for their equipment than was the case a year or two ago, is illustrated by the numerous inquiries for machinery that are now in this market from European houses who buy for the South American countries. In many cases the would-be purchasers state that they will be satisfied to accept long time delivery terms and this is taken as an indication that the Germans are crowded with business. It is also highly probable that it is costing the European manufacturers more to produce their equipment than it did a few years ago, and this is judged by their gradually increased prices, which in many cases are high enough to allow for competition from this country. This is particularly so with machinery and power equipment adapted for plantation and mill use, in which lines there are now a number of inquiries in this market.

### Machinery Inquiries from Japan.

Scattered inquiries in the trade indicate that considerable buying will be done by Japanese export houses here before long, and although there is nothing to indicate what particular line of industries the machinery is intended for it is thought that it is required for an extensive network of railroads to be built in Manchuria by the South Manchuria Railroad Company, which was recently organized in Japan, with a capital of \$100,000,000, for the purpose of changing 1000 miles of narrow gauge railroad, captured by the Japanese in the late war, to broad gauge. The interests concerned recently placed orders in this country for 50,000 tons of steel rails and the indications are that an attempt will be made to do the machinery buying in this country. The houses purchasing machinery for export just now are not so insistent on short time deliveries, and this is taken as a reason to think that much of the buying they have in prospect will come here. It is known that there are a good many inquiries in the market for power equipment in the line of small engines and boilers, and at least one machinery house in New York has been asked for prices and catalogues on a good list of equipment, such as might be installed in railroad construction and repair shops. Part of the equipment needed for the Imperial Steel Works, a list of which was sent out several months ago, has not been bought as yet, and as a matter of fact at least the largest part of the buying already done was contracted here, notwithstanding that German and English houses were given a chance to bid on the work.

Several small sized inquiries for mechanical equipment from railroads have been received in this city during the past week, the more important of which is probably the one from the Grand Trunk Railroad, which has specifications out for considerable machinery for its new shops at Battle Creek, Mich.

The British Columbia Marine Railroad is enlarging its machine shop facilities at its yards at Vancouver and Esquimalt.

Plans have been completed for a two-story concrete car repair shop, 80 x 200 ft., to be erected at Academy Junction, Md., by the Washington, Baltimore & Annapolis Railroad.

In the absence of the authorization of the various tool and machinery programmes by the directors of the Pennsylvania Railroad, the purchasing agent is not issuing any inquiries of note to the tool and machinery trade. Unless there is an emergency demand for some equipment, it is likely that any current, if not immediate, requirements will be incorporated in the general tool and machinery inquiry of the

annual programme. The usual arrangements for supplying the track material for the ensuing spring have been made, and orders are now being issued for the general requirements. This includes track bolts, splice bars, interlocking material and articles for the maintenance of the roadway.

### Chicago Pneumatic Tool Company Expanding.

Plans for largely increasing the capacity of its air compressor works at Franklin, Pa., have been practically concluded by the Chicago Pneumatic Tool Company, New York, and as a result the company will likely be in the market before very long for quite a large amount of new machinery. For some time negotiations have been under way for the purchase of the Grant Tool Works, at Franklin, Pa., which have lately been operated by the Shepherd Engineering Company, and now that these negotiations have been successfully closed the company will have the increased shop facilities which it has needed for a long time to cope with the growing demand for its air compressors. This newly acquired plant consists of a main machine shop, 150 x 300 ft.; machine shop, 150 x 200 ft.; power plant, pattern shop, and other smaller buildings, numbering seven in all. The purchase of the plant also includes 6 acres of unoccupied land which can be used for additional buildings. It is the intention to equip these buildings with the most modern machinery for the manufacture of air compressors, and it is understood that about \$60,000 to \$80,000 worth of new machinery will be purchased to complete the equipment of the buildings. The company only recently extensively enlarged its Franklin works, but even with these increased facilities it was unable to fill orders promptly. It will be remembered that only a few weeks ago its air compressor department had a record day in point of sales.

The Union Switch & Signal Company will double the capacity of its plant at Swissvale, Pa., shortly, the negotiations for the purchase of the necessary ground having been closed recently. For some time the works of the company have been crowded to such an extent that operations are said to have been hindered, and the plant has been kept below maximum production. To overcome this condition and provide for the future the company entered into a deal for the property of the Edgewood Golf Club, and has secured the plot of ground, which comprises about 30 acres, adjoining the present plant. The plans contemplate a gradual enlargement of the plant as the business increases, until it will double its present size. It is planned that the first addition shall be of sufficient size to accommodate the foundry, blacksmith shop and forge shop, now housed in the main building. When the buildings are completed for these three departments they will be moved, and the space thus gained will be devoted to the enlargement of the machine shop, which is one of the most crowded portions of the plant. The ground secured by the company is the only available site the company could obtain that would not involve a scattering of its plant over a considerable area. The negotiations have been under way for a month or more.

A new cement mill of 3000 barrels, daily capacity, is to be erected in Big Beaver Township, Pa., by the Crescent Cement Company, Wampum, Pa. The power plant is to have a capacity of 3000 hp. Plans for the buildings have not been completed, and no contracts have been let.

A new organization of interest to the trade is that of the Alberger Pump Company, which has been incorporated with \$500,000 capital to manufacture pumps, the interests being closely allied with those of the Alberger Condenser Company, 95 Liberty street, New York. The directors of the new company are L. R. Alberger, B. W. Pierson and G. Q. Palmer. The company has not been entirely organized as yet, but a meeting will be held within a week to complete the organization, after which the details of the company's plans will be made public.

All bids recently received from contractors for the construction of the Panama Canal have been rejected, and it has been decided to build the canal under the supervision of the War Department. The construction work is to be in direct charge of engineers of the army, and Majors George W. Goethals, David D. Gaillard and William L. Sibert have been ordered to Panama to take up the work, replacing John Stevens, chief engineer, who has resigned. The idea of doing some of the work by contract has not been abandoned, and it is possible that contracts for small pieces of work will be let.

It is probable that considerable machinery will be needed by the successful contractor for the construction of portions of the Peekskill division of the Catskill Aqueduct, for which bids will be received by the Board of Water Supply of New York at its office, 299 Broadway, on March 18. The work involves a large area of open cut excavation and considerable tunnel work, and a bond of \$500,000 is required of the bidders. The work is to be done in the townships of Portlandt, Yorktown and Phillipstown.

### Power Work.

There are inquiries in this market from the Boston Elevated Railroad Company covering requirements for additions to be made to the company's power equipment. Judging from the inquiries the company expects to add from two to four

vertical compound Corliss engines for direct connection to generators of about 3000 kw. each. It is understood that the company will require boilers to correspond with this equipment, and other accessories to a power plant addition of that size. The Springfield Street Railway Company, Springfield, Mass., also has inquiries out with several power people in New York for power equipment aggregating about 1500 kw., and there are inquiries in the market for two engines of about 1000 kw. each from a New Haven public service company.

A \$225,000 electric power plant is to be erected at Roanoke, Va., by the Roanoke Railway & Electric Company on a site recently purchased from the Norfolk & Western Railroad. Plans are being prepared for the plant, the main building of which will be 100 x 150 ft., which will be equipped with new machinery, the intention being to sell the equipment in its present power plant as soon as the new one is completed. The first equipment to be installed will consist of five 400-hp. boilers and three generating units, each composed of a steam turbine direct connected to generator. One of the turbines will be of 1500 kw. capacity and each of the others of 500 kw. The company hopes to begin work on the foundation within the next 10 days and to have the plant completed by the middle of the summer.

The New York Edison Company, 55 Duane street, New York, is preparing plans for a power house to be erected on 201st street, and the company has planned for a building 200 x 275 ft. and 120 ft. high. Plans are now being prepared for the equipment, it is understood, and it is said that the company will need about 1000 kw. capacity of rotary converters and turbo generators. A number of small motors will also be installed.

The Hooven, Owens, Rentschler Company has, through its New York office, at 39 Cortland street, closed orders for a 300-kw. engine for the Standard Bleachery Company, at Carleton Hill, N. J.; 600-hp. cross compound condensing heavy duty engine, Reading Paper Mills, Reading, Pa., and a 700-hp. cross compound condensing engine for the Utica Knitting Company, Utica, N. Y., in addition to a pair of small engines to run fans for the Delaware & Hudson Company.

## Philadelphia Machinery Market.

PHILADELPHIA, PA., February 26, 1907.

Buying in the local machinery market continues on about the same scale which has characterized business in this territory during the past few weeks. Most of the business placed has been of what might be termed a day to day character and has been confined largely to sales of single tools and in some instances small lots for minor extension and replacement. While business of this class does not run into large daily totals, the aggregate for the week or month, by which this class can be more accurately gauged, has been quite satisfactory to the general trade. Several propositions for large equipments of machinery and tools are before the trade, however, and it is expected that some of these will be ready for closing before a great while. The Baltimore & Ohio Railroad is still sending out specifications against its requirements for this year, but as they have become more scattered, it is believed by the trade that the list is now pretty well covered. The local railroads seem to be holding back on their needs for 1907. In one particular case it is said that little new equipment would be required, as a number of the tools bought last year have not yet been placed in service.

Inquiries continue to be received in good volume and cover almost every class of tools on the market, but business as a rule is slow in closing up. Extended deliveries are, no doubt, the principal cause of this delay on the part of buyers, who cover the market thoroughly for the best possible delivery before placing their orders. The advanced prices, it is understood, do not interfere with business to any material extent, as those who are in the market for tools are generally willing to pay the price, if any reasonable delivery can be assured.

Manufacturers of both tools and machinery continue extremely busy. Orders coming in from day to day have been sufficient to keep them fully occupied, and there is little prospect of any improvement in deliveries on the majority of tools, and particularly those of desirable sizes. Here and there one learns of the ability of some builders to make reasonable delivery on some grades of tools, but these are largely cases where a manufacturer has been able to push some sizes forward while waiting for deliveries on raw materials for others. The delay in obtaining deliveries of materials is becoming quite a factor in making even the deliveries promised some time ago, and some builders of tools are advancing their dates to cover possible contingencies or refusing altogether to name definite delivery dates for certain lines and sizes of tools.

There have been no new developments in the foreign trade, but little inquiry for the general line of tools has been heard of, and no business of any consequence in standard machine tools has been closed during the past week. Several orders for special tools have been booked recently, but the amount has not been large.

Second-hand machine tools continue in active demand, and no difficulty seems to be experienced in obtaining good prices for tools in good condition which can be had for prompt delivery. Buyers in many cases are looking over the second-hand machinery field pretty carefully for tools to supply their immediate needs before placing orders for extended deliveries on new ones. In some lines, however, it is difficult to obtain tools suitable for the work to be done, although dealers are making every effort to keep their stocks in good shape.

While there is a good demand for boilers and engines, particularly those of the higher powers, business closes up rather slowly. Some classes of second-hand equipment are scarce, while in others the market is rather quiet.

The demand for both iron and steel castings continues very large, and prompt deliveries are in many instances hard to obtain. This, in many cases, is due to the inability of the foundries to obtain deliveries on pig iron and other materials, causing at times a temporary suspension of work. Machine tool builders complain considerably of delayed shipments of castings, which frequently further delay deliveries of tools on their part.

The majority interest in the Schutte & Koerting Company, engineer and machinist, of this city, held by the Estate of J. Schutte, formerly president of the company, was recently purchased by Ernest Koerting, who previous held the minority interest in the concern. The only other bidder was Thomas M. Eynon of the Eynon-Evans Mfg. Company, also of this city.

It is understood that a direct trolley line between Philadelphia and the Delaware Water Gap, Pa., will be established this spring by the building of a connecting line to be known as the Stroudsburg & Wind Gap Street Railway Company, extending from Stroudsburg to Wind Gap, Pa., in connection with which the erection of a large power house is proposed at Pen Argyle, Pa. J. B. Williams of Stroudsburg is president of the new company.

McCann Brothers, 1138 Washington avenue, are having plans prepared by Holt & Schober, engineers, for the erection of a large artificial ice manufacturing plant at the southeast corner of Twelfth street and Washington avenue. The building will be 85 x 160 ft., two stories, of fireproof construction, with all modern improvements. The contract to furnish the boilers and ice making machinery has been let to the York Mfg. Company, York, Pa.

The New York Shipbuilding Company, Camden, N. J., has specifications before the trade for the machine tool equipment for the battleship Michigan. This equipment, it is understood, will cost in the aggregate about \$3000.

The E. H. Mumford Company, manufacturer of foundry molding machines, has been appointed sole representative for Henry E. Pridmore, Chicago, in eastern Pennsylvania, Maryland, Delaware and the western portion of New Jersey, for the Pridmore rock-over drop molding machine. The Mumford Company reports a very satisfactory business in molding machines of all types, and particularly those of the plain power ramming and split pattern types. Sales of jolt ramming machines and multiple molding machines are also to be noted, as is also an order for a Pridmore rock-over machine from a local concern. Deliveries during the past few weeks have been extensive, and cover machines of various types to foundries in New England, the Middle States and Central West.

The Standard Pressed Steel Company reports a steadily increasing business in pressed steel shaft hangers, particularly for export, orders having been received recently for varying quantities from Sweden, Japan, Switzerland and Paris. The domestic demand is satisfactory. A recent order was for 120 2 7-16 x 16 in. hangers for the equipment of one concern in New England. Shipments have been very heavy, both for foreign and domestic account, and the plant is kept fully occupied in every department.

H. B. Underwood & Co. recently shipped to London, England, a large portable crank pin turning machine, a portable rotary planing machine and an 8-in. boring bar, while parties in Canada were furnished with a large rotary planing machine. A portable milling machine, a boring bar and a portable engine have been furnished the Georgia Railroad Company and single tools have been shipped to Southern and Western concerns. The demand from the railroad shops for these portable tools has been large, and additional orders are being received from industrial plants. Every department of the Underwood plant is fully occupied, and from the nature of inquiries being received the outlook for new business is considered very satisfactory.

The Mesta Machine Company, Pittsburgh, Pa., has closed an order through its New York office for 400 tons of steel castings for delivery at Honolulu.



## Chicago Machinery Market.

CHICAGO, ILL., February 26, 1907.

The number of manufacturing firms and corporations throughout the country that are reported to have increased, or are planning to increase, their capital stock is surprisingly large. In almost every instance the reasons assigned for this action are stated to be necessity for extension of plants and enlargement of power and producing equipment. This has special significance as relating to the machinery trade, as it indicates the development of additional sources of demand for all kinds of tools and machinery. These developments will doubtless unfold gradually and some projected plans of this character will, of course, never materialize; but on the whole, while there is no reason to conclude that these indications portend an immediate spurt of tool and machinery buying, it may fairly be inferred that, for some time ahead at least, a well sustained demand may be reasonably expected.

It is now pretty generally believed that there will be no further reason for additional advances based on excessively high priced iron. To all appearances the top has been reached, and future movements will likely be of a reactionary nature. Radical and far reaching changes in this respect are, however, not generally looked for in the near future. Aside from the two large lists of tool requirements published in recent issues no special activity has developed in this market.

The Merralls Mill Company, Denver, Colo., recently incorporated for the manufacture of mining machinery and equipment, has bought 30 acres of land adjoining the city on the south. Plans are now being made for the main buildings, four in number, each of which will be 100 x 500 ft. These comprise the machine shop, foundry, sheet iron shop, pattern making and carpenter shop, with storeroom connected. The works will be equipped throughout with the heaviest and most modern tools obtainable, designed to turn out work rapidly and economically. Ten and 20 ton cranes will be included in this equipment, together with small auxiliary cranes in connection therewith. It is the intention of the company to change its present title, and it will be hereafter known as the Merralls Iron Works Company.

The Iowa Radiator Company, Cedar Rapids, Iowa, recently organized for the manufacture of radiators and house heating boilers, has begun work on the erection of a foundry, 80 x 128 ft., and a machine shop, 50 x 96 ft. The company will be glad to receive catalogues and descriptive lists of machinery and foundry supplies from manufacturers and dealers. E. L. Stock is president and general manager; C. H. Chandler, treasurer; W. H. Dunshee, secretary; A. J. Conley, vice-president and general superintendent. Mr. Chandler and Mr. Dunshee are respectively president and secretary-treasurer of the Chandler Pump Company. It is expected that the plant will be completed and ready for operation by July 1.

The Davenport Locomotive Works, Davenport, Iowa, is preparing to increase its capital stock to \$1,100,000, and it is the purpose to spend \$500,000 in the extension of its plant within the next two years. The management is not ready at this time to make a more definite announcement of its plans.

## New England Machinery Market.

WORCESTER, MASS., February 26, 1907.

The occasional pessimistic utterances as to the general outlook of business is not borne out to the slightest degree in the machine tool market, as it is viewed by the manufacturer and the dealer. That a feeling of great confidence prevails among manufacturers is shown by the demand that all branches of industry which use machine tools are making for them; by the demand for all kinds of products, including every class of machinery, which are manufactured by them; by the great additions to works planned for this season or already in process of erection, and by the continued scarcity of desirable labor, the last constituting a problem for those concerns that are expanding on anything approaching a large scale.

A conservative estimate makes the increased production of American machine tools in the past year or two, since the present great demand began, 33 1-3 per cent. Some estimates make it larger. None make it smaller. The next few months will see new facilities for manufacturing in full operation, which will swell the increase quite materially. Yet the past month has put deliveries in worse shape than ever. The dealers are complaining, and with a good deal of reason, for every day they see business passing by which would be had if there were only machines to sell. Those dealers who take the entire outputs of machine tool works

are at an advantage. The others have seen their quota of production dwindle. They attribute this to the important factor which the small dealers form in the present market. They must be cared for by the manufacturers, and the total of their sales figures prominently in the business of the machine tool builders. Dealers are openly and frequently expressing the wish that the demand may fall off to a moderate market, which would put the larger houses at a great advantage over their smaller competitors, and would of course put deliveries back to shop in their normal conditions, considering the maximum output of the shops as the basis of the normal. As it is, deliveries do not improve. Prices have advanced consistently through the trade since the New Year, yet the effect has not in the least discouraged buying. There are exceptions to the rule of higher prices, for a certain percentage of manufacturers have made no change. But most of the standard machines are 5 per cent. higher on the average.

It is far from a serious matter to receive the cancellation of an order for machine tools, a fact that was illustrated in the case of a builder of cylindrical grinding machinery last week. An order for two large machines was canceled, and two hours after the receipt of the letter both were sold, one in New England and the other in the Middle West, a telegraph and a telephone message having accomplished the result.

The boiler builders of New England are receiving inquiries in record breaking volume and their engineers are constantly figuring upon specifications. This indicates a very large business for the year, which will soon take tangible shape as contracts are awarded. The influence of the agitation against lap-seam boilers is felt in the business. The boiler builders suspect that some inquiries are in anticipation of legislation which will compel the replacing of existing boilers. A bill is now before the Massachusetts Legislature which, if it becomes a law, will have a serious effect on this class of boilers. In a general way it provides that no more lap-seam boilers shall be installed in the State, that all boilers shall be inspected under State supervision and that where a boiler is considered defective it shall be replaced. The bill is a result of the several explosions which have resulted in severe loss of life and property. It is estimated that much more than 50 per cent. of the power boilers in use in Massachusetts, as well as elsewhere, are of the lap-seam type, and that many of them will not stand a severe inspection. Consequently the legislation is being watched with a good deal of apprehension by many manufacturers who see a menace to their business in case their boilers should be condemned and compelled to shut down without notice. There are those who even believe that all lap-seam boilers will be condemned at one sweep by legislative action, which would cripple manufacturing very, very seriously, for the demand for new boilers to replace the old, on such a grand scale, could not be met by the boiler manufacturers in a long time. Such extreme legislative action is probably out of the question, but that the lap-seam boiler will be condemned in some form or other is generally expected. Whatever shape the legislation will take it will give the business an important stimulus, and even without legislation some manufacturers prefer to replace their boilers rather than run the chance of a disastrous explosion.

The Gillette Safety Razor Company, Boston, is to make a large increase in its machine shop capacity, which will increase the force of men employed in that department from 50 to 150. The company builds all of the machinery used in the manufacture of its product, which means an important department in itself. A building adjacent to the plant at South Boston has been purchased. It has three stories and basement with 6900 sq. ft. to a floor. It will be remodeled for its new purpose, and the present machine shop on Atlantic avenue will be moved there. Considerable new equipment will be installed, including in addition to that of the present shop the machine tools of the plant of the M. G. Gillette Company, Brooklyn, which have recently been purchased. It is presumed that this building will be adequate to the company's shop requirements for a year or so. When the demand for machinery for manufacturing has been overtaken, the plan is to remove the structure and replace it with a five-story building, similar in height and general construction to that of the rest of the Gillette works.

Murray & Tregurtha, South Boston, Mass., boat builders, are contemplating the erection of a machine shop. Plans are not completed; in fact, final decision has not been made. In case a favorable decision is reached the firm will be in the market for a machine tool equipment.

The Gilbert Transportation Company, Mystic, Conn., is contemplating the erection of a machine shop in connection with important shipyard improvements. No decision has been reached as to the machine tool equipment which will be required.

The Bailey Automobile Company, Springfield, Mass., has been organized to build automobiles operated by a revolving cylinder gasoline motor and has begun manufacturing in a small way and is preparing to erect a new plant, details of which, together with location, have not been decided upon. The company states that it would like information concerning

boilers and that it is also contemplating the purchase of machine tools and wishes to hear from manufacturers. Henry G. Whitman is the president; Bertram Bailey, vice-president, and Willis L. Van Sicklin, secretary and treasurer.

The Hartford Machine Screw Company, Hartford, Conn., manufacturer of machine screws and other screw machine work, and builder of special automatic turning and threading machinery, is to make an important addition to its plant by raising one of its buildings two stories. As the structure is 45 x 264 ft., the increase of manufacturing space is a material one.

The Robinson Tool Company, Box 287, Waterbury, Conn., has been organized to manufacture a bench filer and has already begun operations. This filer was formerly built by the Henry & Wright Machine Company, Hartford, Conn.

The Med-Bow Automobile Company, Springfield, Mass., has begun the manufacture of touring cars in what is known as the old school building at Brightwood, a suburb of the city. A little later the company will be in the market for machine tools. The present quarters will answer for the building of 50 cars this season, and the plan is to procure more commodious quarters for the manufacture of a much larger lot of machines for 1908. The company has a capital stock of \$50,000. F. L. Brigham is president; W. L. Blucke, vice-president; H. A. Medcraft, secretary and treasurer, and G. G. Bowersox, superintendent. The directors include R. Haas of the Electric Mfg. Company, Springfield, Ill.

The announcement is made at Easthampton, Mass., that the Barnett Drop Forge Company will rebuild the plant destroyed by fire a short time ago, replacing the buildings by larger structures.

The Link Belt Company, Philadelphia, Pa., has opened an office at 84 State street, Boston, Mass., from which the business of its drive chain department in New England will be looked after.

The Jones & Lamson Machine Company, Springfield, Vt., manufacturer of flat turret lathes and equipments, is planning to erect a new building in the spring, to be devoted to assembling machines. The building will be 100 x 400 ft., of steel construction, saw tooth roof, cement floor and roof of porous tiles.

## Cincinnati Industrial Notes.

CINCINNATI, OHIO, February 26, 1907.

The Resor Foundry Company, whose plant was recently seriously damaged by fire, will practically double the size of the original shops, plans having been prepared, the work to commence within the next week. The additions and improvements will consist of several buildings of various types and dimensions, and will be up to date in every respect. The warehouse will be 63 x 164 ft. and three stories high; mounting shop, 50 x 184 ft., of steel and concrete construction, three stories high; nickel plating and pattern shops, 60 x 160 ft., two stories high. The power plant will be located in a building 30 x 40 ft. and develop 200 hp.

The foundry property on the east side of Patterson street, between Bank street and Harrison avenue, belonging to the Andrew Messmer Company, has been leased by the Cincinnati Milling Machine Company to be used for foundry purposes until such time as the new foundry being erected at Oakley is completed and ready for occupancy.

The S. Obermayer Company is arranging to make extensive improvements to its plant on Evans street, south of Eighth. A two-story brick building, 75 x 75 ft., will be erected for manufacturing purposes, and a 500-hp. Greenwald Corliss engine installed, with new improved rope drives. Contracts have all been let and the work will be hurried to completion.

The Packard Motor Yacht Company, builder of motor boats and craft for lakes, will locate at Norwood as soon as suitable ground can be secured. Plans are all ready for new buildings, and all details are expected to be arranged within the next week or two.

The Standard Pulley Company, now located at 524-526 East Fifth street, Cincinnati, Ohio, has in course of erection a one-story and basement brick and concrete structure, 50 x 258 ft., adjoining the main tracks of the Cincinnati, Hamilton & Dayton Railroad, facing Powers street, which it is expected will be ready for occupancy by May 1. The new plant will be opposite the company's foundry and will afford excellent shipping conveniences and about treble the present capacity for turning out finished pulleys.

A turbo generator unit of Allis-Chalmers make, recently added to the power plant of the National Cash Register Company, Dayton, Ohio, is rated at 1500 hp., the net output of the three-phase, 250-volt, 60-cycle generator being 1000 kw. The generator is of the inclosed type, ventilated by air forced into the interior. The frame being completely closed in, the noise due to the rushing currents of air is minimized. The turbine is designed to develop 50 per cent. overload when running noncondensing.

## Government Purchases.

WASHINGTON, D. C., February 26, 1907.

The Isthmian Canal Commission will soon ask bids for two 500 and one 800 lb. steam hammers and a quantity of woodworking machinery.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until March 12 for hydraulic jacks, a speed lathe and other supplies for the Eastern navy yards.

The following bids were opened February 19 for supplies for the navy yards:

Bidder 19, Brooklyn Forge & Supply Company, New York; 26, George F. Blake Mfg. Company, New York; 30, Becker-Brainard Milling Machine Company, Hyde Park, Mass.; 37, Central Metal & Supply Company, Baltimore, Md.; 41, Chandler & Farquhar Company, Boston, Mass.; 45, Case Mfg. Company, Columbus, Ohio; 46, M. T. Davidson, Brooklyn, N. Y.; 53, Fairbanks Company, Baltimore, Md.; 55, Frevert Machinery Company, New York; 57, Walter H. Foster Company, New York; 67, R. W. Geldart, New York; 69, Harron, Rickard & McCone, San Francisco, Cal.; 71, Hendey Machine Company, Torrington, Conn.; 75, Henshaw-Buckley Company, San Francisco, Cal.; 79, Hisey-Wolf Machine Company, Cincinnati, Ohio; 96, Manhattan Supply Company, New York; 99, Montgomery & Co., New York; 100, Manning, Maxwell & Moore, New York; 104, North Penn Iron Company, Philadelphia, Pa.; 106, Niles-Rement-Pond Company, New York; 110, Northern Engineering Works, Detroit, Mich.; 113, National Electrical Supply Company, Washington, D. C.; 118, Pratt & Whitney Company, Hartford, Conn.; 120, Pacific Tool & Supply Company, San Francisco, Cal.; 122, Potter & Johnston Machine Company, Pawtucket, R. I.; 134, Wm. Sellers & Co., Philadelphia, Pa.; 140, Sherman, Brown, Clement Company, New York; 159, Vermilye P. Power, New York; 164, Williams, Seaver, Morgan Company, Cleveland, Ohio; 173, Alliance Machine Company, Alliance, Ohio; 175, F. S. Banks & Co., New York; 176, Brown & Sharpe Mfg. Company, Providence, R. I.; 178, Berry & Aikens, Philadelphia, Pa.

Class 1. One electric traveling gantry crane—Bidder 43, \$5900; 104, \$4925; 106, \$7495; 110, \$5990; 164, \$7350; 173, \$7700.

Class 2. Six lathes—Bidder 69, \$4607.80; 75, \$4790 and \$4670; 106, \$5340; 120, \$4890.

Class 3. Two engine lathes—Bidder 69, \$2556 and \$2323.50; 75, \$2390, \$2510, \$2490 and \$2610; 106, \$3230 and \$2738; 120, \$2760.

Class 4. Six lathes—Bidder 69, \$3659.40; 75, \$3870 and \$3780; 106, \$4284; 120, \$3900.

Class 5. One rigid turret lathe—Bidder 75, \$4040; 106, \$3418 and \$4368.

Class 6. One sprue cutter—Bidder 6, \$246.

Class 51. One new model turret lathe, without power feed to turret slide—Bidder 118, \$652.

Class 52. One new model turret lathe—Bidder 118, \$1128.

Class 53. One Potter & Johnston universal shaping machine—Bidder 55, \$428; 57, \$620; 106, \$575; 122, \$620; 159, \$693.

Class 54. Two universal tool grinding machines—Bidder 53, \$750; 134, \$1030.

Class 55. Two vertical spindle drill presses—Bidder 134, \$2110.

Class 56. One Brown & Sharpe vertical spindle milling machine—Bidder 30, \$1210; 176, \$1308.

Class 57. One Brown & Sharpe universal milling machine—Bidder 30, \$1092; 53, \$1150; 71, \$1135; 106, \$1200; 176, \$1166.

Class 81. One speed lathe and one slide rest—Bidder 55, \$156.

Class 165. Electric grinders—Bidder 19, \$266; 41, \$247.68; 67, \$266; 79, \$275.20; 96, \$292.45; 99, \$266; 100, \$266; 113, \$250; 140, \$290.

Class 166. One duplex steam pump—Bidder 26, \$100, 37, \$75; 46, \$348; 113, \$123; 159, \$114; 175, \$129.85; 178, \$299.

Class 167. One steam pump—Bidder 26, \$55; 46, \$57.50; 113, \$93.50; 175, \$91.75.

Class 168. One boiler feed pump—Bidder 26, \$60; 46, \$150; 113, \$99; 175, \$97.40.

Class 169. Two duplex boiler feed pumps—Bidder 26, \$130; 46, \$115; 113, \$209.

Class 170. One portable test pump—Bidder 159, \$109.50.

The following bids were opened February 16 for two 750-kw. steam turbo generator units at the navy yard, Boston, Mass.:

Item 1, price for two units complete; 2, allowance to be made for machines, piping, &c., now at the navy yard.

The Westinghouse Machine Company, Pittsburgh, Pa., item 1, \$58.447; 2, \$3138; complete in six months.

The General Electric Company, Schenectady, N. Y., items 1 and 2, \$29,154, and alternate \$24,500; complete in from three to six months.

The following bids were opened February 16, Circular No. 349, for supplies for the Isthmian Canal Commission:



Bidder 13, L. Barth & Son, New York; 17, Bethlehem Steel Company, South Bethlehem, Pa.; 118, Vandyke-Churchill Company, New York; 148, Drew Machinery Agency, Manchester, N. H.; 157, Fox Bros. & Co., New York; 164, Manning, Maxwell & Moore, New York; 169, Motley, Green & Co., New York; 172, Niles-Bement-Pond Company, New York.

Class 3. One horizontal bending roll—Bidder 13, \$3245, 85 days; 17, \$7500, 200 days; 118, \$3020, 120 days; 148, \$1434, 70 days; 157, \$1245, \$2614, \$2610 and \$3279, 70 days; 164, \$3855.60, 170 days; 169, \$3421.37, 105 days; 172, \$3369 and \$2990, 175 days.

Under opening of February 9, for one engine lathe for the blacksmith at Tompkinsville, S. I., the bid of the Niles-Bement-Pond Company, New York, of \$1800, has been accepted.

Under bids opened January 18, Circular No. 347, for supplies for the Isthmian Canal Commission, the General Electric Company, Schenectady, N. Y., has been awarded class 1, one noncondensing engine and one engine type revolving field generator, \$11,770; class 7, five induction motors, \$2429.

The E. W. Bliss Company, Brooklyn, N. Y., has been awarded class 66, one power cutter, \$186, bids for which were opened at the Bureau of Supplies and Accounts January 29.

The following awards have been made for supplies for the navy yards, bids for which were opened February 5:

The Babcock & Wilcox Company, New York, class 11, six marine straight water tube boilers, \$81,000; class 21, six marine straight water tube boilers, with superheaters and spare parts, for the United States collier Vestal, \$72,900.

Harron, Ricard & McCone, San Francisco, Cal., class 14, one drill press, \$166.65.

Henry Disston & Sons, Philadelphia, Pa., class 125, one Disston premier inserted tooth circular milling saw, \$207.

Vermilye & Power, New York, class 135, one small single plunger pressure pump, \$89.90.

Under bids opened February 12 for supplies for the navy yards the General Electric Company, Schenectady, N. Y., has been awarded class 21, one portable electric hoist, \$680.

**A Trade Excursion to Mexico.**—A party of Cleveland manufacturers and jobbers representing the Chamber of Commerce of that city started in a special train on Tuesday, February 19, on a trip looking to the enlargement of Cleveland trade with Mexico. Going via Chicago and Kansas City the party will visit 13 Mexican cities, reaching Cleveland again on March 8. Among the 60 or 70 manufacturers who joined the excursion were the following: F. F. Prentiss, Cleveland Twist Drill Company, president of the Chamber of Commerce; F. G. Smith, Osborn Mfg. Company; S. H. Moore, Jr., Republic Belting & Supply Company; H. A. Higgins, Standard Tool Company; W. P. Champney, Eberhard Mfg. Company; Isaac G. Haas, Empire Plow Company; J. Q. Riddle, Lockwood-Taylor Hardware Company; A. W. Henn and E. C. Henn, National Acme Mfg. Company; J. S. Crider, National Carbon Company; W. D. B. Alexander, National Screw & Tack Company; E. C. Kollfrath, Bassett-Presley Company; H. C. Bourne, Bourne-Fuller Company; Charles E. Adams, Cleveland Hardware Company; W. C. Connelly, D. Connelly Boiler Company; J. F. Corlett, J. F. Corlett & Co.; A. S. Upson, Upson Nut Company; J. H. Webster, Variety Iron & Steel Works Company; W. R. Warner and Ambrose Swasey, Warner & Swasey Company; A. W. Ellenberger, Worden Tool Company.

Edgar T. Ward & Sons, 23 and 25 Purchase street, Boston, Mass., have been appointed distributors for the Seamless Tube Company of America, and now have an order on the company's books which when completed will give the firm the largest stock carried in New England.

The annual general meeting of the Iron and Steel Institute will be held at the Institute of Civil Engineers, London, May 9 and 10, 1907, under the presidency of Sir Hugh Bell.

W. S. Barstow & Co., of New York City and Portland, Ore., announce the opening of a Montreal office in the Bank of Ottawa Building, which will be in charge of Robert S. Stangland. This extension is necessitated through the firm's increase of business in Canada.

## CONTENTS.

	PAGE.
A New Pratt & Whitney Lathe. Illustrated.....	643
A New Line of E. C. & S. Controllers. Illustrated.....	647
Improved Dust Catcher at Pulaski Furnace. Illustrated....	648
Railroad Earnings in 1906.....	648
A Tindel Double Rotary Slotting Machine. Illustrated....	649
Some Modifications in Blast Furnace Construction. Illus- trated .....	650
Ontario's Malleable Interests and the Tariff.....	653
The Wainwright & Kelley Light Milling Machine. Illus- trated .....	654
The Ohio Rail Company .....	654
Large Contracts for McClure Stoves.....	654
The Nicholson Roller Tube Expander. Illustrated.....	655
The Winona Technical Institute.....	655
Open Hearth Steel Rails.....	656
Armor Plate Bids.....	658
The Delamater Iron Works Associated Veterans. Illustrated	658
A New Use for Concrete .....	659
Alcohol as Fuel for Farm Engines.....	660
The Recession of Niagara Falls.....	661
Editorial:	
Quotations in Market Reports.....	662
Effects of the High Price of Spelter.....	662
The Cleaning of Blast Furnace Gases.....	663
Correspondence .....	664
The Philadelphia Machinery Dealers' Banquet.....	664
Mexican Business Conditions.....	665
Obituary. Portrait.....	666
Personal .....	667
Proposed New Standards for Mining Engineers.....	667
News of the Works:	
Iron and Steel .....	668
General Machinery .....	668
Power Plant Equipment .....	668
Foundries .....	668
Bridges and Buildings .....	669
Motors and Small Engines .....	669
Fires .....	669
Hardware .....	669
Miscellaneous .....	669
The Iron and Metal Trades:	
A Comparison of Prices .....	670
Chicago .....	670
Philadelphia .....	672
Pittsburgh .....	673
Cleveland .....	675
Cincinnati .....	675
Birmingham .....	676
The Coal Trades .....	676
Metal Market .....	677
New York .....	677
Iron and Industrial Stocks .....	678
Recent Customs Decisions .....	679
The Bethlehem Apprentice System .....	679
San Francisco's Improved Demand for Structural Steel.....	680
Labor Notes .....	680
Aid for Metal Refineries in Ontario.....	681
Freight Rate Advances Impending .....	681
The Growth of Canadian Pig Iron Production.....	681
The Machinery Trade:	
Philadelphia Machinery Market.....	683
Chicago Machinery Market.....	684
New England Machinery Market .....	684
Cincinnati Industrial Notes.....	685
Government Purchases .....	685
A Trade Excursion to Mexico.....	686
Hardware:	
Condition of Trade .....	687
Notes on Prices.....	688
Senate Passes P. O. Appropriation Bill.....	689
Price-Lists, Circulars, &c.....	690
Death of David S. Plume. Portrait.....	690
Death of Joseph Turner .....	691
Ohio Hardware Association .....	691
Colorado Retail Hardware and Implement Association. Portraits .....	692
Lufkin Rule Company's Purchase of The Belcher Bros. Company .....	693
Expansion of the Plume & Atwood Mfg. Company....	693
Trade Items .....	694
Requests for Catalogues, &c.....	694
Connecticut Hardware Association. Portraits.....	695
Western Canada Retail Hardware Association. Portraits	697
Among the Hardware Trade.....	698
New York State Retail Hardware Association. Portraits	699
Advertisements in Reading Columns .....	705
Indiana Retail Hardware Association. Portraits.....	705
Iowa Retail Hardware Association. Portraits.....	713
Requests for Catalogues, &c.....	717
Farm Implement News Buyer's Guide.....	718
Stove Pipe Wire.....	718
Samson Steel Fishing Rods. Illustrated.....	718
The Royal Motor Washing Machine. Illustrated.....	718
Chisels and Bits in Boxes. Illustrated.....	718
Ideal Window Ventilator. Illustrated.....	719
Current Hardware Prices.....	720

# HARDWARE

THERE has been of late a good deal of experimenting by Hardware manufacturers and jobbers in magazine and general advertising with a view to bringing their products to the attention of the public. The theory of this effort is that inquiries thus called out may either be attended to by the advertisers direct or be referred to the local merchants. It is well known that both courses have been pursued, according to the character of the goods and the temper and disposition of the manufacturer or jobber who is desirous of having his products thus brought more prominently before consumers at large. The direct sales thus effected are naturally looked upon with little favor by the trade as being a method of marketing goods without having them pass through the hands of the retail merchants, the proper distributors. The objection does not, of course, apply to instances in which the advertiser, be he manufacturer or jobber, refers the inquiries to the local Hardware merchant for attention, giving him an opportunity to effect the sale if he can. In favor of this method of procedure something is to be said, but on the whole the practice does not seem to meet with approval from the merchants.

This subject came up last week at the Indiana convention, one of the largest, most intelligent and in every way representative of the State gatherings. From the trend of the discussion it would seem that there was a practically unanimous sentiment on the part of the merchants present against this form of advertising. The points especially made in opposition to it were that very little business results from it, even in cases where the advertiser refers the inquirer to the merchant, and that in any case the cultivation of opportunities for direct dealings between manufacturers or jobbers and the consuming public is to be deprecated as imperiling the regular course of trade, and tending to break down the existing channels of distribution through the retail store to the ultimate consumer. The trifling character of many of the inquiries called out by such advertisements was also emphasized. Whether or not the feeling in regard to such advertising appeals to the public which thus found expression in the Indiana convention represents the feeling of merchants generally, there can be no doubt that the disfavor thus voiced is significant. The question is indeed raised as to what will be the attitude of the trade on this miscellaneous advertising, which seems to be in vogue at present with a few jobbing houses and with a good many manufacturers. If it is against the interests of the merchants there is in this fact a very strong argument against it.

The fact that manufacturers find it advisable to resort to such a method is significant inasmuch as it emphasizes their conviction of the inadequacy of the existing methods of distribution. It is an effort to supplement the merchandising and advertising of the merchants and to reach possible purchasers who would not be reached through the Hardware stores direct. It is, therefore, the part of wisdom for the retail merchants, instead of simply criticising this procedure, to see to it that their efficiency as distributors is such that it will be unnecessary for the manufacturers to resort to such measures and to go to such expense in the attempt to find a satisfactory market

for their goods. If the jobbers and the retailers cannot serve them adequately and efficiently in selling their products the manufacturers are obviously driven by an imperative self-interest, which is an inexorable law of trade, to find customers for their wares through some other channel. Regarded in this light the magazine advertising of the Hardware manufacturer may be looked upon by the local merchants as an implied reflection on their success as distributors and calling for the adoption of new and more efficient methods.

## Condition of Trade.

Trade continues to move along in fair volume, but in general Hardware lines without as insistent a demand as prevailed a short time ago. In most principal lines manufacturers are still seriously behind in deliveries, although something has been done within the last month or two in clearing up order books. A few manufacturers are showing an increased desire for business, but with most of them the main solicitude is to take care of what they already have. Prices do not show material change, but in a good many cases higher quotations are being announced from time to time. This remark applies particularly to specialties and other goods outside the important staples. The effect of the high price of Copper is being felt, not only in the leading Brass and Copper lines, successive advances in which have taken place, but also in the increased cost of many goods in which this metal enters as one of the materials, although constituting but a minor part of the cost. The trade are watching carefully the course of the Iron market to see whether or not there are any symptoms of a serious reaction, and in this attitude they are naturally governed by a conservative spirit in the conduct of their business. Meanwhile the general prosperity of the country continues, and local merchants in practically every section are taking a very cheerful view of the situation and outlook. Stocks are generally sufficient for current demand, but there are a good many lines in which the difficulty of obtaining goods is causing inconvenience. Delays in transportation continue and in some cases these are the source of very considerable trouble to both manufacturers and merchants. There is little general complaint in regard to collections, but here and there more or less sluggishness is reported.

### Chicago.

Through interviews with a large number of retail merchants, principally from the West and Northwest, it is learned that Hardware stocks are generally well supplied with goods to meet the demands of spring trade, the only noteworthy exception being a scarcity in Barb and other Fence Wires, caused by delayed deliveries, which, however, have not grown to serious proportions. The present demand for Nails is very large. Orders for Wire Nails are being executed by the mills in about 30 days, but it has been a long time since there has been anything even approaching a condition of scarcity in this commodity. Though there has been somewhat less delay throughout the West and Northwest in freight deliveries, the effect of insufficient transportation facilities is still keenly felt, especially in the Dakotas and westward. Jobbers generally report a satisfactory volume of business for February, which in some instances has exceeded that of the corresponding month of last year. While prices are firmly maintained there is little evidence of a



further upward movement, except in a few lines in which copper is an important factor. High grade Bronze House Furnishing Goods have, in sympathy with the sustained high prices of copper, been advanced about 12½ per cent. Owing to last year's failure of the hay crop in wide areas through the Middle West a considerable portion of retail stocks of Haying Tools were carried over, and the demand for these goods is not as good as it would otherwise be. Still manufacturers declare that, in view of these conditions their trade is larger than was anticipated. Unsettled weather continues to interfere with a resumption of outdoor operations, and the actual present trade of retailers is quiet. Enough business is in sight, however, to assure a renewal of activity when opening weather permits.

### NOTES ON PRICES.

**Wire Nails.**—New business from retail merchants is being received by the mills, and jobbers are urging prompt shipments on contract orders. The mills are from four to six weeks behind in shipments, with no immediate prospect of catching up. The market is strong and prices remain unchanged. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers .....	\$2.00
Carload lots, to retail merchants .....	2.05

**New York.**—Business is seasonably light, and jobbers find difficulty in keeping stocks assorted, owing to delayed shipments from mill. This is due to the mills being behind orders and transportation facilities being poor. The receipt of delayed shipments, which were purchased at lower prices than are now ruling, is causing a little irregularity in this market. Jobbers' stocks are more or less depleted, and some kinds and sizes of Wire Nails are not obtainable in this market to-day. New York quotations are: To retailers, carloads, on dock, \$2.19; less than carloads, on dock, \$2.33; small lots at store, \$2.30.

**Chicago.**—No new conditions have developed in the last week that affect movement in Wire Nails, either as to price or deliveries. The demand is exceptionally good, and from four to six weeks is the best that is being done in the way of deliveries by the mills. Present indications point to a sustained, if not increased, business in the near future. Prices remain unchanged, and are as follows: \$2.15 in car lots to jobbers, and \$2.20 in car lots to retailers, with an advance of 5 cents for less than car lots from mills.

**Pittsburgh.**—The market is very strong, and on the verge of a 10-cent advance. Mills are behind in shipments, and jobbers want larger stocks for the spring trade. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers .....	\$2.00
Carload lots, to retail merchants .....	2.05

**Cut Nails.**—Prices were reaffirmed on February 26, at the meeting of the Cut Nail Association. Nails are scarce and the market steady, and some mills have been quoting an advance of 10 to 15 cents over regular prices. Quotations are as follows, f.o.b. Pittsburgh: Carload lots, to jobbers, \$2.05; less than carloads, to jobbers, \$2.10; less than carloads, to retailers, \$2.20. Iron Cut Nails at points west of Buffalo and Pittsburgh are held at 10 cents advance on Steel Cut Nails.

**New York.**—Local conditions remain unchanged, as far as demand is concerned, this being light. Jobbers' stocks are somewhat broken in assortment, but this is not as annoying as it would be if business was brisk. Jobbers' quotations are on the basis of \$2.30 for small lots at store.

**Chicago.**—The demand for all kinds of Nails is remarkably large, but in Cut Nails it is unusually strong. The scarcity that now exists has its origin in the lack of Steel at the mills, some of which are unable to book orders for delivery before April. Prompt shipments easily command from 10 to 15 cents premium, though

there has up to this date been no definite change in quotations. We quote as follows: Iron Cut Nails, car lots, to jobbers, \$2.30; to retailers, \$2.35; Steel, to jobbers, in car lots, \$2.20; to retailers, \$2.25.

**Pittsburgh.**—A meeting of the Cut Nail Association is being held to-day. Some of the mills have been quoting 10 to 15 cents advance over the regular prices, which are as follows, f.o.b. Pittsburgh: Carload lots, to jobbers, \$2.05; less than carloads, to jobbers, \$2.10; less than carloads, to retailers, \$2.20. Iron Cut Nails at points west of Buffalo and Pittsburgh are held at 10 cents advance on Steel Cut Nails.

**Barb Wire.**—Demand from consumers, in some sections of the country, for Fence building, is now urgent, which jobbers are not always able to supply owing to delayed shipments of Wire. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots.....	\$2.15	\$2.45
Retailers, carload lots .....	2.20	2.50
Retailers, less than carload lots.....	2.30	2.60

**Chicago.**—At this season of the year the strong movement in Barb Wire is usually expected, but the present demand is in excess of that for some seasons past. Jobbers are still crowding for shipments, which at some points are much overdue, and consumers are in many sections in the midst of Spring Fence building. We quote as follows: Jobbers, Chicago, car lots, Painted, \$2.30; Galvanized, \$2.60; to retailers, car lots, Painted, \$2.35; Galvanized, \$2.65; retailers, less than car lots, Painted, \$2.45; Galvanized, \$2.75; Staples, Bright, in car lots, \$2.25; Galvanized, \$2.55, car lots to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

**Pittsburgh.**—With the continued high price of Spelter it is possible that the next advance may increase the spread between Painted and Galvanized. Premiums are being asked by a number of the mills. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots.....	\$2.15	\$2.45
Retailers, carload lots .....	2.20	2.50
Retailers, less than carload lots.....	2.30	2.60

**Smooth Fence Wire.**—A heavy demand continues which mills are not always to supply promptly. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads.....	\$1.85
Retailers, carloads.....	1.90

The foregoing prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12	12½	13	14	15	16
Annealed.....Base.	\$0.05	.10	.15	.25	.35	.45	.55		
Galvanized.....	\$0.30	.35	.40	.45	.55	.65	1.05	1.15	

**Chicago.**—The active demand from Fence manufacturers and other Wire using industries is reflected in the large number of orders being received for Smooth Wire of all kinds. Deliveries are slow in this, as in other lines, though it is not believed that serious delays resulting in plant shutdowns will follow. Quotations are unchanged as follows: In car lots, to jobbers, \$2, f.o.b. Chicago, and to retailers, \$2.05.

**Pittsburgh.**—Business is heavy and mills are unable to make as good deliveries as desired. An advance is expected, but for the present we continue to quote as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads.....	\$1.85
Retailers, carloads.....	1.90

The foregoing prices are for base numbers, 6 to 9.

**Rope.**—The market remains in much the same condition as since the first of the year. Manufacturers report demand moderate, but seasonable. The last of each month is usually quieter than at any other part. Prices remain unchanged and are generally being adhered to. Quotations are as follows: Pure Manila, 13 to 13½ cents; B quality, 12 to 12½ cents; Pure Sisal, 9¼ cents; No. 2 quality, 7¾ to 8 cents; No. 1 Jute, ¼ in. and up, 9 cents; No. 2 Jute, 8½ cents.

**Binder Twine.**—There appears to be a limited amount of buying at the present time, if reports generally can be depended upon. It is estimated that in the West half or less than half of the season's requirements have been covered thus far, but it is impossible at this time of the year to arrive at any definite conclusion as to what proportion of orders have been placed. No change has taken place in prices, and an advance is considered as unlikely as a decline, by those familiar with the situation. Eastern quotations generally are on the basis of  $9\frac{1}{2}$  to 9% for less than carloads,  $\frac{1}{4}$  cent less for carloads, f.o.b. New York. Western quotations, on Sisal and Standard, Chicago delivery, are on the same basis. Standard Manila is quoted at  $10\frac{1}{4}$  cents; Manila (600 ft.) at  $12\frac{1}{4}$  cents, and Pure Manila at  $13\frac{1}{4}$  to 14 cents, with  $\frac{1}{4}$  cent less in carloads.

**Copper Products.**—The market in Copper and Brass material continues firm, with no advances since the increase of 2 cents per pound on Sheet Copper, to 32 cents base, a short time ago. Copper for June delivery is being readily sold, and no diminution of business is noticeable on account of the present high prices, Lake Copper, ingot, ruling at approximately 26 cents.

**Vitrified Sewer Pipe.**—An advance has been made in carload price of Standard Vitrified Sewer Pipe and Fittings, 2 to 24 in., f.o.b. factory, as follows:

	Discount.
First quality .....	84%
Second quality .....	87%

It is intimated that further advances are not improbable, with a view to working the discount on first quality goods up to 80 per cent. Manufacturers not now identified with the American Sewer Pipe Company of Pittsburgh, Pa., are understood to follow the company's prices closely, although there is no acknowledged agreement to this effect. Manufacturers are said to be anxious to eliminate second quality goods, as in the keen competition for business first quality goods are sometimes shipped as second quality. The difference in price, it will be seen, is only three points, whereas it formerly was five points. Demand is naturally light, owing to the frozen condition of the ground.

**Window Glass.**—Local demand continues moderate, while manufacturers report that they have taken orders for a large amount of Glass. Prices for carloads and larger lots are firm, and the National Brokerage Company is considering the advisability, it is understood, of changing the terms from 2 per cent. off in 10 days, or 60 days net, to 1 per cent. in 10 days, or 30 days net. Jobbers' quotations from jobbers' list October 1, 1903, are as follows: Greater New York, 90 and 10 per cent. discount on all sizes, single and double strength; outside of Greater New York, 90 and 5 per cent. for single, and 90 and 10 per cent. discount for double strength Glass.

**Linseed Oil.**—Outside of filling specifications on contract orders business is quiet, and local demand is confined to small lots. Crushers find difficulty in obtaining cars to ship Oil, which is interfering with deliveries on contracts. They also are prevented producing Oil to the full capacity of their plants by delayed shipments of Seed. New York quotations for jobbing lots are as follows, according to quantity: City Raw, 42 to 43 cents per gallon; Out of Town Raw, 40 to 41 cents per gallon. Boiled Oil is 1 cent a gallon over Raw.

**Spirits Turpentine.**—This week the market has been strong and prices  $\frac{1}{2}$  cent higher, in sympathy with the Savannah market. A fair demand is reported in New York. New York quotations are as follows, according to quantity: Oil Barrels,  $74\frac{1}{2}$  to 75 cents; Machine Made Barrels, 75 to  $75\frac{1}{2}$  cents per gallon.

JOHNSON & JOHNSON, New Brunswick, N. J., and 100 William street, New York, who exhibited "first aid to the injured outfits and supplies" at the First International Exposition of Safety Devices and Industrial Hygiene, held recently in the American Museum of Natural History, New York, under the auspices of the American Institute of Social Service, not only manufacture innumerable kinds of surgical dressings and supplies for professional use, but make a specialty of outfits for fac-

tory and mill use. These articles are selected for this especial purpose and packed in various sized tin cases for emergent uses and until the more serious casualties can be surgically treated. The various factories and laboratories at New Brunswick aggregate 35 buildings, with 500,000 sq. ft. of floor space. Of especial value to manufacturers and others is "Johnsons' First Aid Manual," one condensed form of which, containing 50 pages, entitled "Hand Book of First Aid," with illustrated and descriptive matter, is sold at a nominal price, a more exhaustive work of 119 pages retailing for 25 cents; the first aid kits also containing the book.

## Senate Passes P. O. Appropriation Bill.

(FROM OUR SPECIAL CORRESPONDENT.)

WASHINGTON, D. C., February 26, 1907.

THE Senate unexpectedly passed the annual Post Office Appropriation bill last night without important amendment. This announcement will be received with much satisfaction by the trade, inasmuch as the bill has passed free and clear of all parcels post, consolidation, post check currency and other amendments in the interest of the catalogue and mail order houses. All the changes in the House bill made by the Senate committee with regard to compensation of carriers, clerks, &c., and referred to below, were adopted.

The Post Office Appropriation bill as passed by the House carried slightly more than \$209,000,000, which the Senate committee increased to \$212,000,000, by far the largest sum authorized by any measure passed by Congress since the beginning of the Government. This enormous expenditure is justified by the Post Office Committee on the ground that the country has recently made giant strides in all forms of industrial and commercial development, and that the postal service, which is an accurate barometer of business conditions, has recently been under a severe strain to provide adequate facilities and cannot be maintained on a satisfactory basis without largely increased appropriations.

### The Principal Item of Increase

In the bill, as passed by the House, was in the allotment for rural and city carriers and railway mail and post office clerks. Rural carriers on routes of maximum length were voted \$840 per annum, while city carriers were divided into five grades on the basis of service and given salaries of \$600, \$800, \$900, \$1000 and \$1100, respectively. Railway mail clerks and post office clerks were allotted an average of about \$100 per annum more than their present pay. The Senate committee still further increased the pay of rural carriers to \$900 per annum and classified all clerks and city carriers in six grades, with salaries ranging from \$600 to \$1200 per annum.

During the consideration of the bill in the House the parcels post question was brought forward by several members, but in every case the text of the discussion was a strong adverse resolution sent to Congress by some industrial or commercial body. In several of these resolutions the pending bills providing for the establishment of a domestic parcels post, which the promoters of this legislation desire to have added to the Post Office Appropriation bill, were strongly denounced as antagonistic to the business interests of the country, and a demand was made that Congress should ignore these bills and instead should enact a penny postage measure.

### Penny Postage.

During the debate on the bill Representative Fulkerson of Missouri declared that in his opinion the House of Representatives was strongly opposed to a domestic parcels post, and he supplemented this statement with a brief, but vigorous argument in favor of penny postage, in the course of which he said:

It has not been many years—we can all remember it—since Congress reduced the rate of postage from 3 to 2 cents on first-class matter. It was predicted then, as it is now, that we were not ready for the reduction; that the revenues of the Government would not stand it; but the reduction was made, and we



have heard no complaint from that day to this on account thereof. And should any member propose at this date to restore the old 3-cent postage rate, his proposition and his effort would here meet with a frigid reception.

We do not expect and we do not want to make money out of this particular department of the service. In fact, no serious injury would result if we should have a deficiency, if that deficiency were caused solely by this proposed reduction. But this class of mail does not create the deficiency, and if reduced to the 1-cent rate will not then be the exclusive cause of deficiencies.

It is perfectly evident to all that it is now too late in this Congress to even hope for the passage of a bill reducing postage on letters to 1 cent, but I sincerely hope that the day is not far distant when this matter will be taken up—possibly during the next Congress—and favorably acted upon. The passage of such a measure would be a small but a substantial benefit, extending to every man, woman and child in the United States.

Mr. Fulkerson's advocacy of penny postage as a substitute for a domestic parcels post was loudly applauded by the House, and it is evident that whenever the condition of the postal revenues will permit any important innovation in the form of a decrease in postage rates, the proposition to cut the rate on letters to 1 cent will show great strength, as against any of the so-called postal reforms urged by the promoters of catalogue house legislation.

#### Attempted Amendments.

In the consideration of the Post Office Appropriation bill by the Senate committee attempts were made to add several amendments to which the retailers of the country are strongly opposed. The plan to consolidate third and fourth class mail matter, so as to reduce the rate on merchandise from 16 to 8 cents per pound, was strongly urged by postal officials and by the Postal Progress League and other similar organizations. The argument most frequently heard in its favor was that it represents a compromise between the advocates and opponents of a domestic parcels post, and on this basis it developed some strength, but the committee rejected it on the ground that it was nothing more nor less than a limited parcels post, and doubtless an entering wedge for much more comprehensive legislation in the future.

The Senate committee was urged to adopt the postal check currency measure drafted by First Assistant Postmaster General Hitchcock and transmitted to the committee during the last session. It was claimed that the growth of the service has emphasized the necessity for a simpler and more convenient form of mail remittances than the regular money order, but no evidence was submitted indicating any public demand for this change. On the other hand, as has heretofore been shown in this correspondence, it has been made perfectly clear that the so-called "sentiment" in favor of this proposition has been laboriously worked up by a literary bureau that was very effectively unmasked during the investigation of the subject by the House Post Office Committee a year ago.

W. L. C.

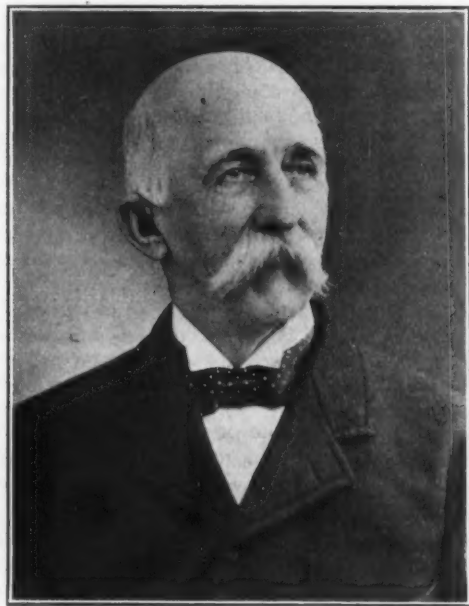
THE BATEMAN MFG. COMPANY, Grenloch, N. J., has lately commenced the publication of a house organ entitled "Iron Age Farm and Implement News," with a view to placing in the hands of the merchant and farmer more complete information in regard to the company's implements than it has been able to do by the use of an annual catalogue and by correspondence. Oftentimes there are matters of importance relative to the company's implements which if the merchant and farmer knew about would lead them to more satisfactory and complete use of the tools, and for this reason as well as the desire to give general publicity to the company's implements the little paper has been launched. Among the special articles in the initial issue are "The Imperative Need for Implements" and "Growing Potatoes in Florida." There is also a sketch of Stephen Bateman, the founder of the business, who died in 1886.

THE WM. SCHOLLEHORN COMPANY, New Haven, Conn., at its last annual meeting voted to increase its capital stock from \$75,000 to \$150,000. The officers of the company are: President, Julius Berbecker; vice-president, William A. Bernard; secretary and treasurer, Frank J. Schollehorn.

## DEATH OF DAVID S. PLUME.

DAVID SCOTT PLUME died February 19 from nervous prostration at his home in Waterbury, Conn. He had been in poor health since his return from the South in December last, where he had gone to visit his daughter, the wife of former Governor John Gary Evans of South Carolina. He was in poor health on his return, and at the beginning of the current year insisted on going to his office in connection with business affairs, greatly against the wishes of his family, and on his arrival home experienced a relapse from which he never rallied.

The subject of this sketch was born in New Haven, Conn., August 22, 1829. He was a pupil for a while at Lovell's Lancastrian School, and after the removal of the family to Newark, N. J., in 1835, was sent to a private school in that city. At the age of 15 he entered the office of a manufacturer of Brass goods in Newark to learn the business, filling as time elapsed the various positions from that of boy up. In 1852 he started in



DAVID SCOTT PLUME.

business for himself, establishing a factory in Newark and a store in New York. These connections brought him in contact with the Connecticut Brass manufacturers, which ultimately led to his purchasing an interest in the Thomas Company. In 1866 he assumed charge of the business of that interest and removed to Thomaston with his family. The company was subsequently merged in what is now the Plume & Atwood Mfg. Company, and a branch of the enterprise was located in Waterbury. In 1873 Mr. Plume removed to Waterbury, where he had since resided. He was general manager of the Plume & Atwood Company and had always held the office of treasurer.

Some indication of Mr. Plume's activity in practical affairs, both in business and governmental capacities, as well as the esteem in which he was held by business associates and citizens, is revealed by an enumeration of some of the various offices he occupied. He represented the town of Waterbury in the Legislatures of 1877-1879, served for four years as Alderman, attended the national convention as a delegate which nominated James G. Blaine for President, and, although not an active political worker, held several political offices. He was treasurer of the American Ring Company, president of the Colonial Trust Company, president of the Thomaston National Bank, a director in the Seth Thomas Clock Company, a director of the Phoenix Life Insurance Company and vice-president and a director of the Connecticut Railway & Lighting Company. He was also a director in the old New York & New England Railroad Company and the Naugatuck Railroad Company. Mr. Plume was likewise one of the original owners of the horse railroad of

Waterbury, and later became president of the Waterbury Traction Company, which absorbed that property. He was a member of the Waterbury Hotel Company, belonged to the Union League Club of New York, and was a member of both the Home and Waterbury clubs of Waterbury. Mr. Plume was one of the best known citizens of Waterbury and was highly esteemed. Since his residence there he had assisted greatly in the city's growth by adding materially to the plant of the Plume & Atwood Company and the American Ring Company. On October 16, 1855, Mr. Plume married Abby C. Richardson of Montreal, Canada, in Nemack, their three children being Frank Cameron, David Nichols and Emily, now Mrs. Evans.

### DEATH OF JOSEPH TURNER.

**A**FTER a brief illness, Joseph Turner, president of the J. R. Torrey Razor Company, and said to be the pioneer Razor manufacturer of the United States, died at his home in Worcester, Mass., February 25, in his sixty-ninth year, of general weakness ending in heart disease. He conducted the business of the company until February 15, when he was prostrated by the illness which caused his death.

Born in Sheffield, England, in 1838, he early became engaged in the making of Knives, Scissors, Razors and other articles from Steel. While still a boy his father died, and at the age of eight years he was put to work, according to the custom in existence in those days, that he might aid in the support of his widowed mother.

He went to work in the factory of Wade & Butcher, manufacturers of Razors. There he learned the steel business and the details of Razor manufacturing, later securing employment with other concerns engaged in the same business and learning thoroughly every branch of the business, until he was considered one of the best workmen in Sheffield. For about 25 years he worked at the trade in Sheffield, coming to this country in 1870 under contract with Heinisch & Sons, Shear manufacturers, of Newark, N. J., as foreman of a Razor manufacturing plant they were to establish. He remained with this firm until 1872, superintending the arrangement of the new branch factory and instructing workmen in the art of Razor making.

As there had been no Razor manufacturing in the United States prior to that time, it was necessary for him to teach the men working under him all the branches of the work.

Leaving the employ of Heinisch & Sons in 1872, he founded the firm of Turner & Cowlshaw, and began manufacturing Razors in Meriden, Conn., under the name of the Turner & Cowlshaw Razor Mfg. Company. This firm turned out a superior quality of Razors, which attracted widespread attention, Mr. Turner personally overseeing the work done in the factories. In 1876 he had accumulated sufficient money to buy out his partner, the firm name being retained.

All this time his firm was manufacturing Razors for the J. R. Torrey Company of Worcester, Razor Strop manufacturer, as well as for other houses in the country. In 1880 Mr. Turner and J. R. Torrey came to an agreement, with the result that the J. R. Torrey Razor Company was incorporated, and the manufacture of Razors was begun in Worcester, Mr. Turner being president and J. R. Torrey treasurer of the company.

During that year Mr. Turner gave up his private interests in Meriden, Conn., consolidating with the Worcester company, and since that time devoted all his attention and energies to the development of the business in Worcester.

He always took a keen interest in the work being done in the blade departments of the shop, and by constant study and application to the business, devised many improvements which were of material importance in raising the quality of goods produced. He also patented many devices and improvements for Safety Razors.

In 1861 he married Sarah A. Mitchell, in the historic old Parish Church in Sheffield.

Never fond of club or lodge life, Mr. Turner was wrapped up in his business, and what little time was not

given to that was passed in his home, which he frequently said gave him more enjoyment than could all the clubs and secret orders in existence.

Besides his wife he is survived by two daughters, Mrs. Louis B. Osborne and Mrs. Florence Cole, three sons, William, John J. and Joseph H. Turner, and seven grandchildren.

## Ohio Hardware Association.

(By Telegraph.)

**T**HE thirteenth annual convention of the Ohio Hardware Association is assuredly the largest and most successful that has ever been held by that body. The facilities of the Ohio capital are taxed to the utmost to accommodate the throng of merchants and others connected with the trade now gathered in Columbus. It is estimated that the attendance numbers close to 2500, of whom a good proportion are retail merchants, members of the association. Reservations at the Southern Hotel, which is the official headquarters, were made weeks ago, and the large hostelry was taxed to its capacity early this morning. Other hotels are likewise crowded.

### The Immense Hardware Show

occupies every foot of space in the capacious Memorial Hall, and the elaborate exhibits there installed represent much advance preparation and a lavish outlay of money, to say nothing of the valuable time of the selling and executive representatives who are present. Many manufacturers and jobbers crowded out of the exhibition hall occupy suites in the hotels where they are showing goods and receiving customers, while several concerns are represented both in the hall and in the Southern. Still another building has been brought into requisition, the Columbus Board of Trade, with its fine auditorium, which is used for the business sessions.

### At the Opening Session

on Tuesday afternoon about 400 members were present, and the programme was of a most interesting character. After the convention had been formally called to order by the energetic president, C. S. Johnson, Barberton, and prayer had been offered by a local clergyman, a few happy remarks of congratulation were made by Governor Harris. J. Y. Bissell, secretary of the Columbus Board of Trade, followed with an eloquent address of welcome on behalf of the city. A most fitting response for the association was made by W. P. Bogardus, Mount Vernon, formerly president of the National Association.

Brief informal addresses were then called for. Among those who responded were ex-Presidents J. F. Baker, Dayton; H. C. Wiseman, Springfield; J. P. Duffey, Greenville, and W. P. Bogardus, G. M. Gray, Coshocton, secretary-treasurer of the Ohio Mutual Fire Insurance Company; G. B. Meyer, Cincinnati; M. D. Tallmadge, Mt. Gilead; Secretary Frank A. Bare, Mansfield; National Secretary M. L. Corey, Argos, Ind., and A. H. Chamberlain of *The Iron Age*. Vice-President F. W. Ingalls, Bryan, was unable to be present on account of illness in his family.

After the announcement of the convention committees by the president a report was made by O. L. Davis, chairman of the local Entertainment Committee, who stated that in addition to the theater party for Tuesday evening, the Columbus ladies would entertain the visiting ladies at a matinee on Wednesday afternoon, and in the evening a complimentary entertainment in the Auditorium would be tendered by the jobbers and manufacturers. The theater party was a most brilliant and enjoyable affair, the entire opera house being occupied by the Hardwaremen, their ladies and guests.

THE old firm of S. Cheney & Son, Manlius, N. Y., Gray Iron founders and manufacturers of Hardware Specialties, has been turned into a corporation with the following officers: Walter W. Cheney, president and treasurer; James H. Tuttle, vice-president, and Fred M. Barnum, secretary. Stephen Cheney died in July of last year and the new corporation is simply a continuation of the old firm. The business will be conducted on identically the same lines as in the past.



## Colorado Retail Hardware and Implement Association.

THE fifth annual convention of the Colorado Retail Hardware Association was held at the Albany Hotel, Denver, on February 13, 14 and 15. The opening session of the convention was held on the morning of the 13th, being called to order by the president, M. S. Whiteley, Boulder. The attendance was very large, exceeding that of any former convention, and much enthusiasm was manifested in the proceedings. The most important action taken was the fusing of the association with that of the Implement men under the style of the Colorado Hardware and Implement Association. The Wednesday afternoon session was graced by the presence of Governor Buchtel, who heartily welcomed the visiting merchants to Denver.

After making a few introductory remarks President Whiteley announced the following committees to serve during the convention: Resolutions: Messrs. Branson, Moys, Bomgardner; Auditing: Messrs. Barkley, Meservey, Jamieson; Nominations: Messrs. Harding, Spriesterbach, Ellis.

The report of the committee appointed to consider the merging of the Colorado Implement and Hardware

and it would be asking a great deal to expect the jobbers to decline to sell them in a retail way. The time will come, I hope, when of their own accord they will see the wisdom of hanging out signs, "We sell at wholesale only." But the time apparently is not yet ripe for such action.

### UP TO THE JOBBER.

I believe the Colorado jobbers could so arrange their prices that nearly all retailers would buy the bulk of their goods of them. The retailer could do the same business on much less capital, if he could get his goods nearby, meet competition and make any money. The jobbers by their retail prices practically dictate the retail prices of the State. No consumer of any size will pay any more than the Denver price with freight added.

Our jobber friends have said that on account of competition they were unable to give the retailers the protection they would like, but I have noticed that no matter how keen the competition Mr. Jobber never sells anything without a good margin for himself. It may be necessary, from his point of view, to cut off the retailers' margin, most or all of it, but his own margin is always safe.

### TO ILLUSTRATE

I will name a few specific commodities from different lines of jobbers, but covering goods which are carried by most Colorado retail Hardware merchants.

Two-inch Black Pipe costs the jobber, in carloads, on present market, \$10.54 per 100 ft. He sells it to the retailer or large consumer at \$11.88 per 100 ft., thus giving him a profit of \$1.34 per 100 ft., or 12.7 per cent. He sells it to the small consumer at \$12.24 per 100 ft., with a profit of \$1.70 per 100 ft., or 16½ per cent. His price to us being \$11.88, the same as to the large consumer, we are shut out from selling such consumer at any profit. We can meet the jobbers' long retail price of \$12.24 and make a profit of 36 cents per 100 ft., or 3 per cent.

Bar Iron, Mine Rails, Norway Iron, Corrugated Iron and Sheet Steel are sold in Denver at just the same prices to retailer or consumer. Valves, Fittings, &c., are sold on a differential of about 5 to 10 per cent., while the jobber has a margin of 25 to 40 per cent.

I took an order recently for a bill of Belting at the price quoted my customer by a Denver jobber, which was 65 off. When I asked the jobber for a price he informed me this Belt cost him 70 off and the best he could do for me was 65 and 2½, which he finally changed to 65 and 5. On this basis he made 11.1 per cent. as a jobber while I had 5 per cent. as a retailer.

A certain lubricant jobbed extensively in this State costs the jobber about \$11.50. He sells it to the retailer at \$16 and to consumers at \$18 to \$20. He makes a profit of about 40 per cent. on what he sells the retailer while the retailer can make only 12½ per cent. or possibly 25 per cent.

Window Glass is sold to contractors in fair quantities at just the same price as to dealers, and in smaller lots sometimes at the same price, and others at an advance of 5 per cent. White Lead is sold at the same price to everybody who buys the same quantity. Nails, Barbed Wire, &c., are sold to consumers at 5 cents per 100 lb. over the retailer's cost. Tents, Ore Sacks, &c., are sold to consumers using a fair quantity at the same price we pay, and in small lots on a differential of 5 to 10 per cent.

Steel Horse Shoes cost the jobber not more than \$4.40 a keg base, and he sells them to the retailer at \$5 and the consumer at 10 cents more. He has a margin of 60 cents, or 13.6 per cent. on what he sells the retailer, while the retailer makes 10 cents a keg, or 2 per cent.

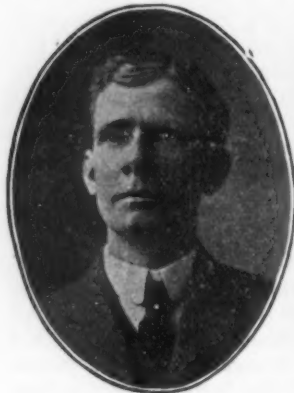
Toe Calks, which cost the jobber less than \$1.25 a box, he sells to the retailer at \$1.55, with a margin of 30 cents a box or 24 per cent., while the consumer pays 5 cents a box more. If we pay the jobber \$1.55 and meet his consumer's price of \$1.60, we make 5 cents a box or a trifle over 3 per cent.

A Boulder party recently selected a line of Builders' Hardware in Denver, for which I obtained the order. I got a margin of 10 per cent., while I have reason to believe the jobber who handled it made 25 to 30 per cent.

### OTHER SOURCES OF SUPPLY.

We feel, Mr. Jobber, that you can help us, and in so doing help yourself. Do you wonder that the retailer buys his goods from other sources even at equal prices with yours, rather than patronize you who holds our noses to the grindstone in this manner?

You have it in your power to revolutionize trade conditions in this State without working a hardship on any



M. S. WHITELEY.



ADOLPH UNFUG.

associations was favorable to the carrying out of the proposed plan. A good deal of discussion followed the report, but it was finally decided to ratify the view expressed by the members of the committee.

### The Retail Jobber.

F. C. Moys, Boulder, read an interesting paper on the subject of "The Retail Jobber," from which we make the following extracts:

It is not my purpose to roast the jobbers for selling the consumer, but to offer for your careful thought a few facts which have struck me as typical of conditions as they exist to-day. Not for the purpose of stirring up strife and dissension, but rather the opposite that we may come to a better understanding and form a closer alliance with our friends, the jobbers, which will result in great mutual benefit. Not being in the Implement business I am not conversant with conditions in that line, so do not expect my remarks to apply to such dealers, unless they happen to fit.

It is an unfortunate fact that in all the lines I carry there is not, so far as I know, an exclusively jobbing house in the State. As I am not very familiar with such matters in the Colorado jobbing centers outside of Denver what I say will be based on actual observation of conditions in Denver, and I presume they will apply fairly well to the other points.

### BEGAN AS RETAILERS.

Our Denver jobbers are the natural outgrowth of large and prosperous careers as retailers. The foundations of most of them were laid many years ago when their opening stocks were bullwhacked across the plains. These pioneers, who braved the dangers of the new West, started in a primitive fashion their small retail business, little dreaming of the enormous proportions to which they should expand by 1907. Many of the friends they made in those early days are still their customers,

one, but with actual benefit to all concerned. Will you do it?

Will you arrange your schedule of prices so that we can buy from you and sell at your retail price and make a reasonable margin? You know it costs us from 15 to 20 per cent. to pay expenses, while yours are probably not over 10. Think it over.

The reading of Mr. Moys' paper was followed by considerable discussion in which Messrs. Moore, Tritch, Abbott, Gutshall, Lovell, Branson, Whiteley and Killin took part.

#### Question Box.

Secretary Unfug conducted the Question Box discussion, which was an interesting and animated one.

Mr. Branson brought up the question of two prices, one for cash customers and one for credit customers. There appeared to be no fixed rule in this matter, although it was generally conceded that a merchant could afford to sell cheaper for cash than for credit.

Opinion was divided as to whether goods should be marked in plain figures or in characters.

Referring to the competition of catalogue houses, Mr. Unfug stated that he had put in a show case containing a supply of Hardware goods carried by the catalogue houses for the inspection of customers, and found it worked effectively in inducing the public to buy a better grade of goods. Several of the members stated that they kept copies of the catalogues issued by the catalogue houses on hand to show to customers.

As to whether 5 and 10 cent counters paid, it appeared that such goods helped to sell wares of higher quality as a result of comparison.

A member stated that he succeeded in keeping expenses down to  $7\frac{1}{2}$  per cent.. This was regarded as exceptionally low. Other members reported their percentage as running all the way from  $12\frac{1}{2}$  to 17 per cent.

It was the sense of the meeting that it did not pay to cut prices on staple articles.

In regard to the practice of sending local checks in payment for goods one member remarked that as he paid the freight on the goods he thought the jobber should pay the freight on his money. Another member stated that in sending personal checks it was better to add "with exchange," this in many instances not being deducted.

Further discussion pointed out to the members the desirability of borrowing money to discount bills. Also that it paid to check up weights on freight bills. Considerable dissatisfaction was expressed with the high prices on Stoves.

#### Resolutions.

The Committee on Resolutions submitted the following report, which was adopted:

Anticipating the immediate merger of the Colorado Retail Hardware Association and the Colorado Implement Dealers' Association, we, your Committee on Resolutions, believe it expedient to recommend a resolution governing the future policy of the joint organization, for the protection of members of our association, whether Hardware or Implement dealers, to secure what is due from the jobbers and manufacturers, and which has not at all times been observed; therefore be it

*Resolved*, That our officers shall negotiate with the jobbers and manufacturers who retail, with a view of obtaining protection and a more satisfactory differential than now exists between the jobbers' prices to retailers and those to consumers.

Your Committee on Resolutions does not deem it proper to press any recommendations upon the proposed new organization, but, knowing your sentiments, we recommend that a vote of thanks be tendered to Denver jobbers, traveling men and manufacturing agents, for their very generous entertainment of us during this session; also the thanks of this association are due to Governor Buchtel for his kind address of welcome; to the railroads for giving us reduced rates; to the Albany Hotel for making us special rates and for the many acts of courtesy extended us by the management; also to the jobbers and manufacturers for the very handsome exhibitions made, showing that they recognize that the members of this association are the proper distributors of their wares.

Inasmuch as by unanimous consent this association has decided to merge with the Colorado Implement Dealers' Association, be it

*Resolved*, It is the sense of this association that it is the duty of every member of the Colorado Retail Hardware Association to become a member of the joint association.

Other resolutions were adopted in opposition to parcels post, and favoring the reclassification of second class mail and one cent postage.

#### Joint Meeting with the Implement Men.

On Friday morning a joint meeting of the Colorado Retail Hardware Association and the Colorado Implement Dealers' Association, which was also holding its annual convention, was held. It was called to order by Mr. Whiteley, president of the Hardware association. Mr. Unfug reported that both of the associations had favored the merging into one organization. He then read the constitution and by-laws for the new organization which had been prepared by a joint committee representing both associations. Some amendments were discussed and approved, and later the constitution and by-laws as a whole were adopted. The name of the enlarged association will be the Colorado Retail Hardware and Implement Association.

#### Election of Officers.

The Nominating Committee reported the following officers for the ensuing year, who were unanimously elected:

PRESIDENT, T. M. Harding, Canon City.

VICE-PRESIDENT, E. Starkey, Greeley.

Directors for one year, W. H. Clotworthy, Ft. Morgan; for two years, Geo. J. Coddington, Wellington.

After the convention adjourned, the Executive Board held a meeting and unanimously elected Adolph Unfug, Walsenburg, as secretary-treasurer of the new association.

#### LUFKIN RULE COMPANY'S PURCHASE OF THE BELCHER BROS. COMPANY.

THE LUFKIN RULE COMPANY, Saginaw, Mich., New York office, 280 Broadway, has just bought outright the entire business of the Belcher Bros. Company, Irvington, N. J. This business, originally established in England in 1780, was brought over to America in 1821, and has been carried on continuously here since. The company manufactured Maple and Boxwood Rules of all descriptions, Desk Rules, Tailors' Rules, Glaziers' Rules, Size Sticks for the shoe trade, Shrink Rules, Wantage Gauges and many other kinds long known in the trade.

The business has been entirely reorganized by the formal resignation, according to New Jersey statutes, of the late directors, and the election of a new Board of Directors identified with the Lufkin Rule Company. The present board consists of Fred Buck, Saginaw, president; H. G. Hollis, New York, vice-president; Theodore Huss, Saginaw, treasurer; F. J. Sharp, New York, secretary; R. T. Wallace and S. B. McGee, Saginaw, and J. C. Drach, New York. The office of the Belcher Bros. Company as now constituted, is at 280 Broadway, together with much of the manufactured stock from which to execute orders. The factory at Irvington, N. J., will be operated but for a short time, a few months at most, when the entire plant will be removed to Saginaw and operated as a department of the Lufkin Rule Company, which also now has a factory at Windsor, Canada, opposite Detroit, producing goods for the Canadian market in accordance with tariff conditions in the provinces.

#### EXPANSION OF THE PLUME & ATWOOD MFG. COMPANY.

THE Connecticut Legislature has just acted favorably on a report of its Committee on Incorporations authorizing the Plume & Atwood Mfg. Company, Waterbury, Conn., to increase its capital stock from \$1,000,000, as at present, to \$3,000,000. The directors of the company are authorized to increase the amount of capital from time to time, at their discretion, until the maximum amount permitted is reached. A meeting of the company's stockholders is contemplated for the near future, to take action in the matter. The company manufactures largely brass and copper goods, operating factories in both Waterbury and Thomaston, Conn. The officials of the company had already been developing and maturing plans for the expansion made possible by increased capital.



## TRADE ITEMS.

THE ANSLEY MFG. COMPANY, Scranton, Pa., expects shortly to put a new Faucet on the market, the special feature of which is that it is self-closing. It is adapted to all purposes for which a wooden Faucet is intended.

A. P. Cox, advertising and sales manager of Dillon-Griswold Wire Company, Sterling, Ill., has resigned his position with that company and on March 1 will take charge of the advertising department of the Turner-Looker Company, Sherbrook Distilling Company and the People's Distilling Company, all of Cincinnati, Ohio.

THE building at 99 Pearl street, Boston, in which is located the wholesale Hardware business of the Baldwin & Robbins Company, was very seriously damaged by fire February 24, the company suffering a severe loss.

THE VEHICLE WOODSTOCK COMPANY, Chicago, Ill., whose offices were formerly in the Marquette Building, has removed to suite 1813 Fisher Building.

THE STANDARD STAMPING COMPANY, Marysville, Ohio, in addition to its regular lines is making preparations for the production of Metallic Window Screens, utilizing therefor special machinery which has been ordered, and for which additional factory room is now being provided.

THE business formerly operated under the name of Boss Washing Machine Company, Cincinnati, Ohio, up to the time of the death of Conrad Dietz, its proprietor, several months since, has now been incorporated under the same name, with a capital stock of \$200,000. The incorporators are Mrs. Margareta Dietz, Louis E. Dietz, William C. Dietz, Charles Dietz, Albert Dietz and Frank H. Kunkel, the capital stock being fully paid up. The late Mr. Dietz was a pioneer in the manufacture of Washing Machines, and from a very small beginning built up a very large trade for his product.

G. W. BRADLEY'S SONS, Westport, Conn., have incorporated under the style of G. W. Bradley's Sons, Incorporated, with a capital stock of \$54,000. The company has secured the services of a mechanical engineer, and expects to increase materially its output of Axes and Edge Tools, and to be in an especially favorable position to supply the trade with a full line of Bradley, Horton and Watts' goods, as well as other brands. Quality has always been a prime consideration with the concern, and in a short time it is hoped to be in a position to furnish the quantity as well. G. W. Bradley continues to be actively interested in the manufacture of the goods.

THE ATLAS LAUNDRY MACHINERY COMPANY, Cincinnati, Ohio, is the name of a new organization with the following incorporators: F. M. Watkins, P. H. Hesser, Charles Hisey, C. F. Klein and Joseph Wolf. F. M. Watkins was formerly in the business, but some years ago sold out his interests to the present F. M. Watkins Laundry Machinery Company, and in the interval devised several new machines which will be made at his present plant on Bay Miller and Sixth streets, where he is engaged in the production of Marine Gas Engines. The number of employees will at once be doubled, and it is intended to erect an entirely new plant in the near future on Spring Grove avenue, in the heart of the Machine Tool district.

SHELTON COMPANY, Shelton, Conn., New York office 107 Chambers street, has issued an illustrated catalogue and revised price-list of 78 pages of a complete line of Tacks, Small Nails, Glazier Points, &c., for the general Hardware trade, besides a full line of Cobblers' Nails, &c., for the shoe finding trade. The catalogue is well printed and conveniently arranged, with very clear description of the goods.

A LARGE MANUFACTURER of Hardware Specialties who issues a handsome and elaborate catalogue has hit upon an effective manner of sending it out in the mails. On the front cover is left a blank space for the address and stamp, and no envelope is used, the leaves being held together by a strong Wire Clip. The post office has accepted the pamphlets in this form. The recipient has the handsome cover before his eyes without the necessity of opening an envelope. The theory is that he is much less apt

to throw it to one side than if its attractions were concealed from him, to be thrown or tossed into the waste paper basket without opening, or perhaps with the hasty glance which tells him that it is advertising literature. It is believed that there is some loss in the mails, because of the temptation to confiscate the catalogue before it reaches him to whom it is addressed, but, on the other hand, there is less loss at the desk of the merchant or customer.

THE WILLIAMS METAL STAMPING COMPANY, 317 Babcock street, Buffalo, N. Y., is the title of a new organization formed to manufacture patented articles controlled by it, in addition to the production of lines of stamped sheet metal goods. The machinery and equipment are rapidly being placed and operations are expected to begin about March 1. The company will also be in a position to manufacture, under contract, for others, from making the dies to the finished state.

THE ALEXANDRIA HARDWARE COMPANY, Alexandria, La., was recently incorporated with a capital of \$150,000 and will engage in a wholesale and retail Hardware and Mill Supply business. The new company recently bought the stocks of two leading firms of that place—namely, Roberts Bros. and I. C. Miller. The officers elected are as follows: C. E. Roberts, president; Ed. Rand, vice-president, and C. J. Dent, secretary and treasurer.

THE S. M. HOWES COMPANY, 40-46 Union street, Boston, Mass., will be represented during the present year by the following salesmen: S. B. Smith, Central West and far Western States; W. A. G. Marlatt, New York, Philadelphia, Washington and Baltimore; also western Connecticut and western Massachusetts; R. B. Curtis, southern Massachusetts, eastern Connecticut and a portion of eastern Massachusetts; J. H. Brown, eastern Massachusetts and Rhode Island; E. H. MacKenzie, Maine, New Hampshire and Vermont, and T. F. Tierney, in Boston and vicinity.

## REQUESTS FOR CATALOGUES, Etc.

*The trade is given an opportunity in this column to request from manufacturers price-lists, catalogues quotations, &c., relating to general lines of goods.*

FROM CUSACK & ALLEN COMPANY, newly established in the Hardware business at 1004 Arch street, Philadelphia, which requests catalogues from manufacturers of Builders' Hardware, as well as the general line of both Heavy and Light Hardware.

FROM PHILIP A. ROSENTHAL COMPANY, 349 Eighth avenue, New York, which desires catalogues and price-lists of Shelf Hardware, Tin and Enameled Ware.

FROM UNION HARDWARE COMPANY, which, on February 25, will open a retail store carrying Builders' Hardware, Coach Goods, Paints and Stoves, at Millinburg, Pa.

The Blanks Hardware Company, Lockhart, Texas, has recently been incorporated with a capital stock of \$12,000, and the following officers have been elected: Jas. G. Blanks, president; M. H. Holmer, vice-president; Dodo Diarlenz, secretary, and M. W. Blanks, treasurer.

W. Simpson, Minneapolis, Minn., has recently acquired the business of the Northern Hardware Company, Menominee, Mich., the transaction involving about \$10,000.

Seiwell & Yeomans, Otterbein, Ind., has recently been incorporated with a capital stock of \$15,000, and will conduct a general Hardware and plumbing business. The directors are C. W. Seiwell, E. A. Seiwell and C. H. Yeomans.

The Jackson Hardware Company, Aberdeen, S. D., wholesale Shelf and Heavy Hardware, Stoves, Paints, Sporting Goods and Woodenware, will erect a new store building.

## Connecticut Hardware Association.

THE Connecticut Hardware Association held its fourth annual meeting at Hartford, Conn., in the rooms of the Hartford Business Men's Association on Wednesday and Thursday, February 20 and 21. The early part of the Wednesday afternoon session was devoted to the roll call, receiving reports of committees and other routine work. Appropriate greetings were wired to the Iowa Retail Hardware Association, New York State Retail Hardware Association and the Indiana Retail Hardware Association, which were holding conventions at the same time.

### President Bassett's Address.

The annual address of Geo. J. Bassett, New Haven, president of the association, was in part as follows:

Our membership is large when we compare it with the size of our State and with the total number of Hardware dealers in it. But in a State like Connecticut, where the towns are so near together, there is no good reason why all the live Hardware merchants should not be with us. And I want to ask you men before you leave to-morrow to give our secretary the names of dealers in your own or neighboring towns who ought to be members of the association. And I want to further ask each one of you to act as a special committee of one to get your neighbors to join. And if you need any help you'll find the officers of our association ready to extend it. Don't put this off, but get them in now.

### FIRE INSURANCE.

Another matter of much importance to us is that of fire insurance. The Business Men's Association of this



I. C. TREAT.

State have done a good work in persuading the companies to take off the extra premium added after the San Francisco disaster. Much praise is due to their committee, of which one of our own members was a member. The high premiums of the regular companies have caused many of us to try the Hardware mutuals, with the result that we have effected a saving of from 25 to 40 per cent. on such insurance. I have within the last few weeks corresponded with five of these mutual associations in regard particularly to the limit of the stockholders' liabilities and the safeguarding of their funds. Their answers have been quite satisfactory, and I honestly believe that in all cases the probable benefit much exceeds the possible risk.

### THE POSTAL PROBLEM.

A few weeks ago a resolution was railroaded through the General Assembly endorsing a bill before Congress for the consolidation of third and fourth class postal matter under the third-class rate of 8 cents a pound. This matter was brought to our attention and as the policy of this association has always been against any revision of the postal laws that would give special privileges to any one class of people, I instructed our secretary to write the proper parties in the General Assembly asking that this matter be recalled or reconsidered. I now understand that the protests against the resolution have been so general that it has been tabled. Our association does not, I think, take any narrow position on the subject of postal reform. We are opposed to any change that tends to create a large deficit in the Post Office Department. We would welcome a change which would give us 1-cent letter postage and which would compel publications made up largely of advertisements to pay a rate which would cover their proportionate expense of carriage and delivery. A law like that might increase the cost of advertising in some publications, but it would weed out a lot of worthless matter from the mails.

### THE CATALOGUE HOUSE QUESTION

is not of such vital importance to us as it is to our Western brethren. But it is of sufficient importance to give us a lively and partisan interest in the fight. The catalogue house has undoubtedly come to stay. It can supply better than any other source a certain class of purchasers. You cannot damn it out of existence. You

cannot hit it by legislation. If you hit it too hard it will hit back, and it has shown itself a hard hitter. But there are certain things we can do which will minimize the effect of mail order house competition. We can insist that our manufacturers and jobbers put us on the same purchasing level as they do the mail order house. We can decline to buy of manufacturers and jobbers who sell mail order houses or who make price concessions to them. And instead of sitting up and howling about the injustice of it all we can use our brains in meeting intelligently such competition as comes to each one of us.

### MANUFACTURERS SELLING CONSUMERS.

A local condition which has caused us some trouble is the habit some manufacturers and jobbers have of selling the consumer in places where they have no representation in the trade. This is a matter which can easily be remedied in most cases by our association if we have the proper data to work on. There is no use in going to a manufacturer or jobber and making a complaint unless you can prove your claims. Let me suggest that all complaints of this kind, with full particulars, be mailed to our secretary, or Grievance Committee, and if they cannot adjust the matter it can be handed up to the National Association. You will find that neither manufacturers nor jobbers will care to take too arbitrary a position if they see we are in earnest.

### New Officers.

The election of officers for the ensuing year resulted in the unanimous choice of the following:

PRESIDENT, I. C. Treat, Hartford.

FIRST VICE-PRESIDENT, Eli C. Birdsey, Meriden.

SECOND VICE-PRESIDENT, F. T. Terry, Ansonia.

RECORDING SECRETARY, James De F. Phelps, Windsor Locks.

FINANCIAL SECRETARY, F. A. Farrar, So. Manchester.

TREASURER, Lewis B. Crosby, New London.

### Resolutions Concerning Postal Matters.

Resolutions were adopted in opposition to the establishment of parcels post, and advocating the reclassification of second class mail and one cent letter postage. The resolutions are similar to those adopted by other retail Hardware associations and already published in our columns.

### F. E. Muzzy's Address.

F. E. Muzzy of the J. Stevens Arms & Tool Company, Chicopee Falls, Mass., representing the American Hardware Manufacturers' Association, made an interesting address in part as follows:

It affords me great pleasure to bring to you to-day greetings and good will from the American Hardware Manufacturers' Association, that I am delegated to represent. The president of our association has often ex-



GEO. J. BASSETT.



ELI C. BIRDSEY.

pressed in no uncertain terms his loyalty to the retailer, and his views on this subject are in accord with the views of every member. His candor and fearlessness commands the respect and admiration, I believe, of every retailer and jobber, and his bidding would be to extend to you the right hand of fellowship. We realize you are our distributors; that as you prosper we prosper, and although many of us can distribute our goods more economically through the jobber, it does not prevent our having the same interest in your welfare as though we



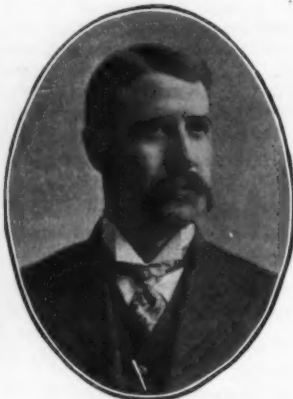
sold to you direct. Nearly every Hardware manufacturer whose goods you distribute is trying in his own way to assist you. His methods may not always meet with your approval, but if he makes mistakes they are of the head and not of the heart.

#### PROGRESS OF HARDWARE MERCHANTS.

I am pleased to note the decided progress made in every way by the retail Hardware merchant during the last decade. The retail Hardware merchants of the United States are the best and brainiest class of retail merchants in the country—yes, in the world. Bradstreet and Dun show them the strongest financially, and especially so in the small towns and cities, where they are the molders of public opinion. Your associations are better organized for work and accomplish more than any other trade organization in the field in which they work, for which you should feel justly proud. In the older associations they no longer meet for a love feast only, but to work and to do. They are fast accumulating members, and in numbers there is strength, so if every member does his duty in an incredibly short time every



F. T. TERRY.



J. DE F. PHELPS.

retail Hardware merchant will belong to your association, as he should, leaving the "dealers" only behind, whom you should convert into merchants, for it is the "dealers" and not the merchants who lose to the catalogue houses the 5 per cent. of this country's Hardware sales.

#### BENEFITS OF ORGANIZATION.

This is an age of organization. All of the larger industries, both manufacturing and mercantile, are organized for self-protection and advancement of their interests. Competitors from nearby towns whom you think by foul means have stolen your legitimate trade you find, when meeting them at conventions, do not have horns and cloven feet as you imagine. You cease to cut your profits to injure them, not benefiting yourself, and all are benefited thereby. You cannot stand still. You either progress or retrograde, and it is entirely up to you to advance or recede. Every failure has its excuses justifying the failure. Business methods change and you must change with them. Because your grandfather was a successful merchant, heated his store with a fireplace and lighted it with a tallow "dip," does not signify that you to be successful must do likewise.

#### CASH DISCOUNTS.

Many retailers and a few jobbers have not discovered the value of cash discounts. Bills carrying a 2 per cent. cash discount that are net 30 days, mean for the 20 days of time that you have the same as 36½ per cent. annual interest. Bills carrying 2 per cent. in 10 days and net 60 days from date of invoice mean that a merchant can afford to borrow money and pay 14 3-5 per cent. and discount his bills. It pays to borrow money at 5 per cent. to discount bills that carry a 2 per cent. cash discount in 60 days and are net five months from date. No intelligent merchant would think of embarking in business and borrowing a part of his capital, paying 15 per cent. for the use of the same, yet this is just what hundreds of the brightest merchants in the United States are doing to-day.

Prosperous jobbers and catalogue houses never miss a cash discount. They realize the profit that it means to them, and they figure on saving every cent. Then why not the retail merchant? It is a profit that you cannot afford to miss, besides sustaining a reputation for prompt pay which is valuable to every merchant. Do not get into the habit of taking your discount 5 or 10 days after the discount period has passed. It is odious to the one that you send it to, even if they do not complain.

#### PARCELS POST.

As actions speak louder than words, I would call your attention to work of the jobbers and Hardware manufacturers who were responsible for the resolution passed by the National Board of Trade at their annual convention held January 15th and 16th last at Washington, D. C.: "Resolved, That the National Board of Trade is opposed to any legislation looking to the establishment of a parcels carrying system in connection with the Post Office Department of the country at this time." This after the National Board of Trade had endorsed parcels post for 12 years in succession. Thus you see we work for your interest when you least expect it.

Ell C. Birdsey, a member of the committee from the Connecticut Association to the Extension of American Commerce Convention, held in Washington, D. C., a few weeks since, read an interesting report of the proceedings of the convention.

#### The National Convention.

F. Alexander Chandler, secretary of the New England Hardware Dealers' Association, and D. Fletcher Barber, a member of the Executive Committee of the National Retail Hardware Association, were present at the Thursday morning session and spoke of the advantages and pleasure which would result to the members of the Connecticut Association by attending the annual meeting of the National Retail Hardware Association to be held in Boston in June, 1907. It was decided by a unanimous vote that the association should give up its usual summer outing and instead attend the national convention.

#### Question Box.

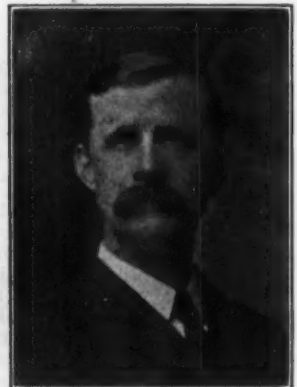
The Question Box brought out the fact that about three-fourths of the association membership sold Field Grass Seeds and would be interested in frequent reports of market conditions from other sources than the wholesale dealers.

It also developed the fact that a certain manufacturer was selling his "seconds," including Tools and other products, to other than the legitimate Hardware trade, in boxes without the manufacturer's labels, marked "Imperfect"; also that a portion of these goods found their way into jobbers' hands, all to the injury of the retail Hardware merchants. It was resolved that the matter be taken up by the Grievance Committee.

An interesting discussion followed the question, "Is it better to hire green boys and break them in, or to hire



F. A. FARRAR.



LEWIS B. CROSBY.

men?" One merchant had found it was more satisfactory to train boys in his methods.

The question, "Does it pay to allow customers 2 per cent. if they pay accounts before the first of the month, for the preceding month?" brought out the fact that one merchant billed Nails to carpenters and builders at a certain base price, and stamped on the bottom of the bill "25 cents per keg less for cash." He found that these bills were paid promptly.

A difference of opinion was expressed, owing to local conditions, "whether it is good policy for a merchant to go out of legitimate territory and quote lower prices outside than in his own town?"

**Entertainment.**

Wednesday evening, the members of the association attended the theater, a block of seats being reserved for their use. Before the Thursday morning session opened a large number of the members availed themselves of an invitation to visit the State Capitol, under the guidance of the local committee.

The annual banquet of the association was held at Hotel Garde, Thursday afternoon, with about 70 persons in attendance. Mr. Treat, the newly elected president, efficiently acted as toastmaster. The speakers included Hon. Rollin Woodruff, Governor of Connecticut; Hon. Wm. F. Henney, Mayor of Hartford; Chas. H. Parsons, New Britain; D. Fletcher Barber, Boston; F. Alexander Chandler, Boston, and Geo. J. Bassett, New Haven. A feature of the dinner was a number of songs interspersing the courses, led by the Association Glee Club, and joined in by the entire company. The songs abounded in mirth and dealt largely with the characteristics of members.

**Members Present.**

The following members of the association were present at the meeting:

A. H. Abbe, A. H. & E. W. Abbe, New Britain.  
Chas. G. Agard, Agard Hardware Company, Torrington.  
G. H. Alford, G. H. Alford, Winsted.  
Geo. H. Baker, Geo. H. Baker Company, New Haven.  
Geo. J. Bassett and Halsey B. Kelley, John E. Bassett Company, New Haven.  
Frederick C. Bidwell, J. C. Bidwell & Co., Hartford.

Elm C. Birdsey, Birdsey & Raven, Meriden.  
E. H. Butler, E. H. Butler, Gilford.  
W. A. Church, F. Hallock Company, Derby.  
G. I. Clapp, Clapp & Treat, Hartford.  
Lewis B. Crosby, G. M. Williams Company, New London.  
H. E. Dickman and W. B. Dickman, Dickman Hardware & Supply Company, Wallingford.  
Thos. J. English, Jaynes Hardware Company, Greenwich.  
F. A. Farrar, F. T. Blish Hardware Company, So. Manchester.  
Geo. S. Fuller, Fuller & Peet, Canaan.  
Alfred G. Gruener, W. A. Warner & Bro. Company, New Haven.  
F. Wm. Hallock, F. Hallock Company, Derby.  
Walter N. Harris, Hamilton Hardware Corporation, Waterbury.  
Henry S. Hitchcock, F. F. Hitchcock, Woodbury.  
Andrew R. Jones, Danbury Hardware Company, Danbury.  
F. D. Jordan, Jordan Hardware Company, Willimantic.  
R. C. Lightbourn, Lightbourn & Pond Company, New Haven.  
G. M. Merwin, Dickerman & Pond Company, Winsted.  
Fred Meyers, Louis L. Rosenberg & Co., New Haven.  
Herbert L. Mills, Herbert L. Mills, New Britain.  
H. W. Morse, H. W. Morse, Meriden.  
John M. Page, John M. Page & Co., Naugatuck.  
Ralph E. Page, Ralph E. Page, Hartford.  
F. J. Parsons, F. J. Parsons, Thompsonville.  
Jas. De F. Phelps, F. S. Bidwell & Co., Windsor Locks.  
J. O. Phelps, Jr., Blodgett & Clapp Company, Hartford.  
E. H. Pond, Lightbourn & Pond Company, New Haven.  
N. B. Richards, F. T. Blish Hardware Company, So. Manchester.  
H. N. Robinson and W. D. Williams, Tracy, Robinson & Williams, Hartford.  
Louis L. Rosenberg, Louis L. Rosenberg & Co., New Haven.  
Fred J. Snow, Snow Hardware Company, Rockville.  
Frank T. Terry, T. P. Terry & Son, Ansonia.  
I. C. Treat, Clapp & Treat, Hartford.  
Frank M. West, Frank M. West, Bridgeport.  
Robt. C. Witte, R. C. Witte, Hartford.

Others present at the meeting were the following:

Chas. H. Parsons, P. & F. Corbin, New Britain, Conn.  
Geo. W. Downs, New Jersey Wire Cloth Company, Trenton, N. J.  
D. Fletcher Barber, Chandler & Barber, Boston.  
F. Alexander Chandler, secretary New England Retail Hardware Association, Boston.  
F. E. Thompson, *The Iron Age*, New York.

## Western Canada Retail Hardware Association.

**T**HE third annual convention of the Retail Hardware and Stove Dealers' Association of Western Canada was held at Winnipeg on the 12th inst., and, considering the severity of the weather and the snow blockades on the railroads there was a fair attendance of members, the register showing 43 delegates on hand. There are about 400 Hardware merchants in the three provinces covered by the association, 335 of whom are affiliated with the organization.

**President Falconer's Address.**

The enthusiasm of the delegates present was not chilled by the elements or small attendance. On the contrary, they got down to business and transacted a great deal in a very short time. The first matter of importance was the president's address, in part as follows:

At the inception of this association the relationship existing between the retailers and jobbers was not as satisfactory as it is at present. Through the efforts of your secretary the jobbers are confining their trade to the legitimate Hardwaremen, and the jobbers recognize that the Retail Hardware Association is a body capable of guarding their own interests.

**LEGISLATION.**

In regard to legislation, this is clearly proven by the private action taken by the secretary and executive when the Postmaster-General announced his proposed C. O. D. Parcels Post bill, a bill which is clearly in the interests of department and other large stores and detrimental to the small retailer. In this connection I may say that the secretary and myself sent a letter to the Postmaster-General and the secretary also wrote you all asking you to take action in the matter, and a great many of you have done so. We have the assurance that the Postmaster-General is prepared to withdraw his proposed legislation. This is gratifying; if we had not taken this action, this would have gone through.

**RECOMMENDATIONS.**

You will be asked to consider carefully a number of questions of importance to the association.

1. The general use of collection forms for bad debts. This we think is a good thing, but not used enough.
2. The advisability of publishing a delinquent list, for the exclusive use of every paid-up member of the association. It would be a good thing for every individual member to have a list of his bad debts sent to the secretary and the secretary prepare same and send one to every Hardwareman.

**The Secretary's Report**

was next read, as follows, in part:

I beg to place before you the report of the association for the past six months. By it you will see that the asso-

ciation has not been as successful financially as it should. This is accounted for by the failure and indifference shown by a number of members in not remitting their dues, although repeatedly requested to do so. Many replies to these requests were to the effect that the association was a good thing, but had not done them any good so far, and until it did they would not pay their dues.

It is unfortunate that these dealers have not exercised a little patience in order to allow of the association arriving at that stage where it could show them visible results; there is no doubt but that they, with others, have shared equally in any benefits the trade have so far obtained.

I have letters from many others testifying to the good the association has accomplished. Don't you think it would be suicide on your part to allow the success secured during the past two years to be lost now? I venture to say that if you do that within two months you will regret it. Every day matters of interest to your business are cropping up. You have the mail order and catalogue houses reaching out more and more after your trade. They are now trying to secure legislation to enable them to still further encroach on your territory; are you going to allow them to do so without a protest? If not, how do you expect to combat them if not united?

**MANUFACTURERS, JOBBERS AND RETAILERS.**

A better understanding between the manufacturers, jobbers and dealers has been secured by the association. You are receiving better protection to-day than a year ago; much more, however, remains to be done along these lines, and it is only by your active support of the association that this can be accomplished.

The question before you to-day, and which you will be called upon to decide, is the continuance of this association on the same broad lines as at present. If you decide to do so, measures will have to be adopted to place it on a sound financial basis.

This could be done by appointing a member in each locality whose duty it would be to see that every member in his district paid his dues. If this could be accomplished it would mean the saving of hundreds of dollars to the association and allow of the executive pushing the work more vigorously.

**Dominion Association.**

Action was taken by the convention on a suggestion forwarded by Weston Wrigley, Toronto, secretary of the Ontario Retail Hardware Association, that pending the organization of other provinces a temporary Dominion Association be formed, to be composed of the presidents and secretaries of the Western Canada and Ontario associations. President Falconer and Secretary McRobie were authorized to act in this capacity by the convention.

The matter will now come up for action at the annual



convention of the Ontario Retail Hardware Association, to be held in Toronto on March 28 and 29 next. The Nova Scotia Retail Hardware Association, now being formed, will be asked to join in the move, as will the proposed retail association in British Columbia.

In connection with this matter important action was taken in severing all connection with the Retail Merchants' Association of Canada. The "Western Board," on which the Hardwaremen had representatives along with grocers, druggists and other retailers, was dissolved, and while the Hardware association will continue to work in harmony with the other organizations on matters of mutual interest, there will be no direct connection.

In Winnipeg a warm controversy is under way between the Hardware merchants and druggists. An early closing by-law closes all stores at 6.30 p.m., except druggists. The latter sell Razors, Cutlery, Sporting Goods, &c., after the Hardwaremen close, and steps are being taken to prevent the druggists from selling anything but purely drug lines.

#### Parcels Post.

A strong resolution was adopted condemning the proposal of the Postmaster-General that the Canadian postal regulations be changed to include a parcels post c. o. d. feature, reference to which was made in the president's address. In conjunction with the Ontario Retail Hardware Association and the trade press a strong agitation has been conducted against the proposal for the past two months, no assistance being received from the Retail Merchants' Association or other trade organizations. Thousands of letters of protest were sent to the Postmaster-General and members of Parliament by the retail Hardwaremen, the campaign being so successful that announcement was made in Parliament by Postmaster-General Lemieux on February 15 that in view of the general hostility he would withdraw his proposals.

#### Reciprocal Demurrage.

The efforts of the Winnipeg Association to secure from the railroads a system of reciprocal demurrage charges were warmly endorsed. It was pointed out that the present system is unfair. The merchant is forced to pay demurrage charges if he delays to unload his goods from the car, but the railroad company is not compelled to compensate the dealers for delay in delivering goods.

#### Officers Elected.

The officers for last year were re-elected by acclamation. Four members of the Executive Committee elected last year for only one year were re-elected for a term of two years. They were C. F. Comer, Calgary; A. E. Clements, Olds; A. R. Auger, Okotoks; and J. R. Fox, Weyburn. The other members of the Executive Committee were elected last year for a term of two years. The officers and Executive Committee for the ensuing year are, therefore, as follows:

PRESIDENT, A. J. Falconer, Deloraine.  
FIRST VICE-PRESIDENT, J. B. Curran, Brandon.  
SECOND VICE-PRESIDENT, W. M. Gordon, Winnipeg.  
SECRETARY-TREASURER, J. E. McRobie, Winnipeg.  
EXECUTIVE COMMITTEE: Alberta—A. E. Clements, Olds; C. F. Comer, Calgary; A. R. Auger, Okotoks. Manitoba—H. S. Price, Boissevain; A. P. Macdonald, Winnipeg; O. Gilmer, Winnipeg. Saskatchewan—G. K. Smith, Moose Jaw; S. A. Clark, Saskatoon; J. R. Fox, Weyburn.

The semiannual convention will be held at Winnipeg in July.

At a regular directors' meeting of the Colt's Patent Fire Arms Mfg. Company, Hartford, Conn., Frank C. Nichols was elected second vice-president and immediately assumed the duties of that office. Mr. Nichols has been connected with the Colt Company for the past five years, coming to Hartford from Chicago. For the first three years he was a traveling salesman for the company, but for the last two years has been its sales manager. Previous to that time Mr. Nichols was a traveler for E. C. Stearns & Co., Syracuse, N. Y., and his territory extended from Chicago to the Pacific Coast.

#### AMONG THE HARDWARE TRADE.

Henry Mocklemann has purchased the store of Wm. Koerner, in Elkhorn, Neb. He will carry a retail stock of Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Oils and Sporting Goods.

George Mortimer has purchased the Hardware business of Frank Turney, in Shelton, Neb.

J. T. Pendergast, Abilene, Kan., has sold a half interest in his Implement business to J. M. Walters, and the firm name has become Pendergast & Walters.

Dahlstrom & Nelson have succeeded C. G. Dahlstrom & Son in Ceresco, Neb., and will carry Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Paints, Oils, Sporting and Athletic Goods and Harness.

W. H. Stone has succeeded to the business of Sherity & Stone, in Clinton, Mo., and will carry Shelf and Heavy Hardware, Stoves, Tinware, Queensware, Sporting and Athletic Goods; also tinning and plumbing.

Walker & Amos have succeeded Walker & Davis, in Mokane, Mo., and will carry Shelf Hardware, Stoves, Tinware, Agricultural Implements, Harness and Buggies.

Vanevans & Henton have purchased the Hardware business of the Manford Mercantile Company, in Manford, I. T.

S. C. Carpenter has succeeded Carpenter & Melton in Mt. Morian, Mo., and will carry Shelf and Heavy Hardware, Stoves, Tinware and Agricultural Implements.

Mark Lawritson has succeeded Lawritson Bros., in Loomis, Neb., and will carry Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Paints, Oils, Sporting and Athletic Goods, Harness and Saddlery.

J. H. Butts & Son have purchased the business of the Smyth Hardware Company, in Wichita, Kan., and will conduct a retail business in Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Sporting and Athletic Goods, Buggies and Harness.

The Strohkarck, Stehn & Eckermann Company, Davenport, Iowa, recently incorporated with a capital stock of \$18,000, will engage in a general Hardware business. The following officers have been elected: F. A. Strohkarck, president and treasurer; Henry Stehn, vice-president, and Adolph Eckermann, secretary.

The Wagner-Hockery Company, Kingfisher, Oklahoma, has recently been incorporated with a capital of \$25,000 and will engage in a general Hardware business. The incorporators are Ed. Hockery, C. L. Wagner and E. T. Battin.

The Gary Hardware Company has been incorporated at Gary, Ind., with \$20,000 capital stock, by Henry A. Paine, Frederick L. Maurer and Edward Everest.

The Amboy Hardware Company has been incorporated at Amboy, Ind., with \$25,000 capital stock, by Marshal Smith, Frank D. Brown, David Elbert Brown, Arestus A. Miller and Walker Hayes.

Clark Hardware Company, Jamestown, N. Y., has been incorporated with a capital stock of \$75,000 and the following officers: M. H. Clark, president; Geo. B. Pitts, vice-president and treasurer; M. S. Van Scotas, secretary. The company does a wholesale and retail business in Shelf and Heavy Hardware, Stoves, Tinware and Agricultural Implements.

The Fowler & Sellars Company, White Plains, N. Y., has been incorporated with a capital stock of \$100,000 and carries a general stock of Hardware, Plumbing and Tinsmiths' Supplies. The company is preparing plans for a new and larger store.

## New York State Retail Hardware Association.

THE fifth annual convention of the New York State Retail Hardware Association, held at Syracuse, February 19-22, was the most important and interesting of the series which has brought together the Hardware merchants of the State for the great common good of the retail trade. The occasion was exceptional in every detail. The attendance was larger than ever before, being more than commensurate with the material increase in membership which has been made during the past 12 months. The attendance was more representative, considered not only in the aggregate of interests, but territorially as well. The speakers touched the subjects most pertinent to the trade, and much benefit came from the various addresses. Discussions were rich in development of important questions and in the good results which attend the interchange of information concerning experience and methods.

It is fitting to say a word concerning the prospects of the association for the coming year. Work was begun and an added interest awakened, which coupled with the prestige of such a convention, insures a most prosperous year and another large increase in membership. The present membership of close to 320 Hardware houses should be materially increased before the next convention. The association is to be congratulated upon its able new president, L. G. Mattison.

### The Opening Exercises.

The convention opened in the large assembly hall of the Alhambra at 2.30 o'clock, Tuesday afternoon. President Louis J. Ernst briefly welcomed the members and guests, who had assembled in unusually large numbers for the first day's meeting. He introduced Acting Mayor John W. Sadler, who took the place of Mayor Alan C. Fobes, who was unavoidably absent from the city. Mr. Sadler extended a cordial greeting to the association and extended the freedom of the city to its members. At the request of President Ernst R. R. Williams of *The Iron Age* responded on behalf of the association.

### Presidential Address.

President Ernst then made his address, which contained valuable and interesting suggestion and comment. He said in part:

Heretofore our conventions have been favored with the presence of representatives of manufacturers, who sought to display their goods in the narrow and insufficient quarters of hotels. This feature, while no doubt pleasant and instructive, yet on account of the crowded condition of the hotel where the convention was held created a great amount of discomfort, which detracted much from the pleasure of the gathering. Realizing this and with the knowledge that more manufacturers would be pleased to be represented at the convention, your Executive Committee decided on the, to them, new experiment of a Hardware exposition, and accordingly authorized the Exposition Committee, consisting of Messrs. Sherwood, Ferres and Foley, which was appointed for the purpose, to lease the building known as the Alhambra, and sublet space in it for exhibition purposes. That the Executive Committee acted wisely is evident from the fact that much more space was applied for than was at the committee's disposal. The thanks of this association are due to the Exposition Committee for the success of the enterprise. The members of the committee were called upon to give much time, labor and thought, but this was most cheerfully given, and the result is before you. The exposition promises to be

### A VERY INTERESTING ADJUNCT

to the convention, and visits to it cannot fail to be interesting and instructive to the members and profitable to them and to the exhibitors. It would seem as though our manufacturing friends could display their wares and interest the merchants with much less expense, and more ease by means of such an exhibition than by any other method. The merchant comes unhampered by any details of his own business. He is in a receptive mood and can be shown and discuss the merits of goods without being interrupted, as he usually is in his own store. The same argument applies to the exhibitor, who can show and explain his wares to his customers, or possible customers, by means of samples at hand much more un-

derstandingly than by catalogues. Who can tell but that in the future expositions as this may be looked upon as a necessity?

### DESIRABLE INFORMATION FROM MANUFACTURERS.

In his very able address delivered at the convention at Atlantic City last October President E. M. Bush of the National Retail Hardware Association touched upon a subject of the greatest importance to every Hardware merchant in the country. He appealed to the manufacturers to assist the retail merchants and their salesmen by furnishing them with more information regarding their goods.

The maker of a Saw, a Knife or a Lock is fully conversant with the article he manufactures. He knows why a certain kind of steel or a brand of iron or a kind of wood is better adapted to the purpose than any other and why the article is made of this particular steel, iron or wood, how a mechanic can best use a tool to the best advantage; why not impart this information to the merchant and his clerk so they can understandingly describe their wares to their customers?

### HOW CAN IT BE EXPECTED THAT A MERCHANT

with hundreds and thousands of different articles on his shelves can talk with knowledge and point out the merits of different articles when the only guide he has is the label on the package giving quantity, size, number and name of article? Why has not the manufacturer seen the necessity of imparting this knowledge to his customers before? Possibly because he has not looked at the matter from a merchant's standpoint. He may see the advantage of taking the suggestion offered by President Bush and acting on it; if he does not we ought to all collectively and individually see that it does not slip his mind.

### CATALOGUES SHOULD BE MORE EXPLANATORY

regarding goods mentioned in their pages. There is no reason why goods should not be properly described, so that a merchant can readily understand wherein one article differs from the other. Many an expensive catalogue is rendered almost useless for the want of necessary information. A few weeks ago I was called upon by a manufacturer of Chucks who handed me his catalogue. I looked through it and reached two pages on each of which cuts exactly alike were used. There was no description whatever, excepting the numbers and list prices. The prices of one were much lower than the other, and upon inquiry I was told that the discount on the lower price Chuck was greater than on the higher priced one. I did not understand it, and accordingly asked for the reason and was told that the cheaper one was made of iron and lighter, while the other was of steel and heavier. I immediately called the gentleman's attention to the deficiency in his catalogue, which if descriptive might be of some use to his customer. He admitted the criticism was deserved, but said he had not thought description necessary.

This undoubtedly is the reason why many catalogues lack a very essential feature in their make-up. The manufacturer fully understands everything regarding his product and without giving the matter any further thought imagines that every merchant possesses the same knowledge, and consequently that, which would make the book much more valuable and convenient, is omitted.

### TRADE LITERATURE OF STANDARD SIZE.

In my early Hardware days catalogues, price-lists and circulars were not nearly as plentiful as they are now, and consequently easily taken care of. It would seem as though the number of such publications had doubled within the last 10 years, and it has become a very serious question how to provide place for them and how so to arrange them that they will be of use and any particular one easily found when wanted. It seems apparent that the only solution to this problem is in standard sizes.

This matter has been agitated before in other conventions, and has been considered and reported upon by committees without any appreciable result. We all continue to receive these publications printed in all imaginable lengths, widths and thicknesses and colors, in sheets, folders, pamphlets and books. If publishers only knew how much of this typographical art is

### THROWN INTO WASTE PAPER BASKETS,

because solely of the want of established standard sizes, it would undoubtedly hasten the day of some uniformity in this kind of literature. There is no such thing as providing suitable places now for catalogues and price-lists. As an illustration I offer this as an example: I recently had a case built in my office for bound catalogues, and was pleased with the new piece of furniture,



when along came a catalogue just  $\frac{1}{2}$  in. larger than its predecessor and just  $\frac{1}{4}$  in. larger than the space between shelves. The result was that it was in the way everywhere, and finally laid aside where it may be entirely lost sight of.

The average Hardware store as a rule has not any too much room to devote to library purposes, and consequently it becomes very much of a conundrum to know what to do with the ever increasing quantity of this printed matter. If the publishers would only take a sensible view of the situation and adopt standard sizes the matter would shape itself.

The single sheet if of a uniform size can be accommodated by filing in loose leaf binders, or in the numerous filing devices which now exist. The so-called folder is a nuisance. There is no way of filing it, and it should find its way into the waste basket as soon as received.

#### OF PAMPHLETS THERE IS NO LIMIT

to the assortment. They vary in size from that of a business card to a door mat. It would be interesting to know if the publishers of some of these freaks expect to



L. G. MATTISON.

have them preserved any length of time. In these pamphlets, as in many other things in life, a happy medium is desirable. It does not matter so much just what size these pamphlets are so long as they are of a uniform standard size. There can be no possible reason for this great diversity of size, except that nothing has been decided upon among manufacturers to accomplish this result, although various committees and conventions have had the matter placed before them. The time may come when decisive action

will be taken. It is certain that concerted action by the members of the National Retail Hardware Association would bring about a desired result.

In bound catalogues, while the great assortment as in the pamphlets does not exist, yet there is no reason whatever why they should not be uniform as to size, except thickness, leaving out, of course, the few very large books which form a class by themselves.

#### NUMBER OR DATE.

Another criticism regarding catalogues is the carelessness of some firms issuing them without date or number to distinguish them from the preceding edition. It is beyond comprehension how business houses will spend large sums of money on catalogues and show such indifference in this one particular.

#### SEPARATE CIRCULAR SUMMARIZING NEW GOODS OR CHANGES IN LIST.

A suggestion here seems apropos regarding the issuing of a new catalogue. It should always be accompanied by a circular calling attention to any new goods represented, and giving the page on which these new goods can be found. The result would be that a merchant's attention would be given to the goods which otherwise he might pass by unnoticed. Changes in list prices in a new catalogue should also be announced on a similar circular.

#### NAME ON THE BACK.

Backs of bound catalogues should bear the name of the firm issuing it, the same as the title of a book would be expected to appear on its back. There are many bound catalogues deficient in this respect, making it necessary for the seeker after Hardware knowledge to unnecessarily waste time and patience and good nature in his search for information.

I suggest that our representatives to the national convention take these matters up, with a view of concerted action by the national as well as the several State associations. This is offered not by any means in a fault finding spirit, but as presenting the merchant's side of the question, hoping that at some day in the near future manufacturer and merchant may meet and adopt some system meeting the views of both.

#### RECOMMENDATIONS.

I suggest that in the future the Committee on Legislation be continued in office until the adjournment of both the State Legislature and Congress, and that the secretary be instructed to have sent to each member of the committee the paper called "Merchants' Legislative League Advocate" from January 1 to July 1. Each mem-

ber of this committee would be expected to carefully examine each number of this publication and note any matters of interest to the members of our association as merchants, and communicate with the chairman, calling his attention to the matter and giving their views, so that he can call the attention of the full committee and act jointly.

Considering the considerable expense incident to sending our full quota of delegates to the National Convention I would recommend that the number of delegates from this association in the future be limited to two, and that they be the president and secretary. It is self-evident that these two officers can better represent this association at the national convention, inasmuch as they are fully conversant with all the affairs of the association, and by virtue of their knowledge of association matters can render better service to both State and National Association.

I submit for your consideration the advisability of the incorporation of this association and would suggest that the matter be referred to the Committee on Organization to investigate and report at the convention in 1908.

A committee of three, consisting of John G. Ferres, Johnstown, as chairman; W. D. Hollowell, Penn Yan, and A. R. Grant, Syracuse, was appointed to consider the president's address and apportion its recommendations to the several committees.

R. R. Williams of *The Iron Age* made an address, touching on various aspects of conditions affecting the Hardware trade, laying stress upon the actual value of the sentimental side of business as it touches the relations between merchant and customer, and between the merchants themselves.

#### A Traveler's View.

W. P. Foster, president of the Rochester Commercial Travelers' Mutual Benefit Association, made an address on "The New York State Retail Hardware Association from a Traveling Man's Point of View." The value of suggestion and criticism from a man who for 25 years has been in touch with the trade and who has the faculty of discerning weak places in the methods of some merchants may readily be seen from the following words of Mr. Foster:

Your association is growing and there is no question but a very largely increased membership is desirable. But my experience with association work teaches me that success does not depend entirely upon a large membership. The financial standing and business ability and integrity of your members have vastly to do with your influence. Your association has been favored since its organization with a membership made up from among the best dealers in the States. The fact, however, exists



LOUIS J. ERNST.



J. B. FOLEY.

that many good dealers in the States are not yet members of your association. This should cause you to use every effort you can to induce them to join with you.

#### A GREAT MANY MEN IN BUSINESS MATTERS ARE MATERIALISTS.

and while they are not "from Missouri," yet they demand to be "shown" what association benefits are before giving up their hard earned money. Are you sending out the proper kind and quantity of literature to inform these backward brothers? Much eloquence has been expended during the past year in denouncing the mail order and catalogue houses, and some of the trade journals constantly appeal to the retail dealers in all lines to co-operate in various methods for the destruction of that

sort of competition. However, it continues to thrive, and whether just or unjust, it has undoubtedly come to stay, as long as people who have cash to pay in advance for goods can be persuaded to send it away to strangers, instead of paying it to their neighbors. So far as it affects your trade the catalogue house is your competitor. In your contest with the mail order or catalogue houses you argue that the patriotism of the farmer should incline him to buy of his local dealer, as the dealer studies the wants and needs of his locality and buys such goods as he knows are best suited for his particular section.

#### CLEAN UP.

I am sorry to say that the following bit of advice is one much needed in places: "clean up." A clean, orderly place of business costs less to manage than one that is dirty and disorderly. The good influences radiating from a well kept place will bear fruit every year in the increase of sales and the greater efficiency of your employees. Clean up your stock and get rid of some of the antiquated goods on your shelves and make room for something more modern. I was called to inventory a stock of goods a few years ago and found on a shelf on the second floor \$80 worth of coffin trimmings that had not been disturbed since 1862. Goods that are out of date are worth less every year that you keep them. So get them out of sight and sell at cost or less. It is like a tooth pulled to the average dealer to sell goods less than cost, but after it is over he feels better.

Have your store well lighted at night. Nothing is more attractive from the street than a well lighted store, and nothing is more dismal than a store with a few dirty, smoky lamps. Have your windows clean and well trimmed with seasonable goods. See that your clerks



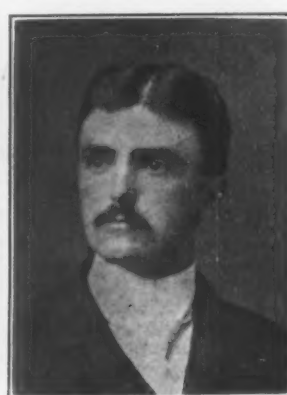
C. P. SHERWOOD.



JOHN HOLLEY BRADISH.



JOHN G. FERRES.



A. E. TOWNE.

are polite and obliging. Equip them with knowledge necessary for the intelligent conduct of your business.

Observation is a good teacher, but not all clerks in a Hardware store have their faculty of observation so trained that it will work automatically in every instance. A clerk needs help and should not be left to grope his way upward unaided. Frequently kindly counsel will not come amiss. Mistakes should be pointed out and their remedy suggested. Above all, every employer himself should be to his clerk a shining example of industry, intelligent effort and absolute honesty in all things.

#### BEING A GOOD MERCHANT MEANS HARD WORK.

Now here is a statement calculated to make a merchant sit up and take notice, and the more he thinks the more he will feel like thinking until he has thought the question dry. What is the reason that last week when John Smith came in to buy a pair of Skates that you did not sell him, but he went across the street and bought from the other fellow? What is the reason that yesterday your competitor had an ad in the local paper that filled his store to-day with customers, while your clerks were standing around chewing gum? I know what you will say. Maybe this or maybe that, but the biggest "maybe" is you are not as good a merchant as he is. Don't you know that it is harder work to think like "blazes" than it is to go out and black a Stove. The most of us are inclined to shrink from looking our business fairly and squarely in the face, and then make plans to make "her bum." It is a good deal easier to sit on the counter than it is to write up a good ad. It is a good deal easier to empty a barrel of Oil than it is to sit down and figure out how to become a better salesman. What I am trying to get at is that it is mighty hard work to be a "cracking" good merchant. It takes a whole lot of energy and push, and it takes it every day in the week. When you sit down and read *The Iron Age* or any other good trade journal you have got to get the wheels in your head in motion if you get any good out of it.

#### SALESMANSHIP.

Why is it that so many clerks and merchants do not exert themselves more in the art of salesmanship? They are respectful, courteous, polite, dignified, friendly. They answer questions with skill and knowledge and they are sincere in thinking that they have performed their duty to the utmost. But they do not. They are negative in their attitude and talk. They leave all the positive work and positive thinking to the prospective buyer, and therefore unless the person has a real and hungry, persistent, positive want he goes away from the store without purchasing and a sale is lost.

Study your goods, then the art of salesmanship, and finally study that wonderful subject, human nature, and how to sway and influence the members of the human family. I have a merchant in mind who has for his motto, "We have it, can get it, or it isn't made." No one can come into his store and ask for an article, be it ever so small, but that the goods are immediately forthcoming, or the remark that "we are just out, but will have it to-morrow," and he makes good his promise by ordering the goods by mail or express. He figures that a satisfied customer is one of the best assets a dealer can have, and he naturally expects to see him again when in want of goods.

#### IT PAYS TO LOOK AFTER THE SMALL ORDERS.

There is a natural attraction in the big order, and merchants are too frequently tempted beyond the limits of good business policy to obtain it. Sometimes the margin of profit is cut into, or extravagant concession made. In fact, it sometimes seems as though any method is regarded as legitimate to obtain a nice, fat order. As a

matter of fact the dozen or two little purchases that are so apt to be despised and frequently neglected are very apt to represent more profit, as well as a wider clientele, than the one order that is a dozen times as big.

#### IT IS THE STEADY CUSTOMER THAT PAYS

In the end, even though his individual purchases fall within the list of despised small orders. Don't neglect the small order for the big one. Rather depend upon the little one for profit, and get as many of them as you can. The man who spends 25 cents a day with you at a good rate of profit will make you more money in a lifetime than the one who once or twice in a dozen years gives you a \$100 order, after frying every drop of fat out of it by the extra concessions he demands with it because of its importance.

#### Wednesday's Session.

The Wednesday meeting was given up to reports, election of officers, some routine business and a Question Box session, which developed interesting features. President Ernst explained that the serious illness of Secretary Foley prevented the presentation of a secretary's report and an announcement of the condition of the association's membership. The report of Treasurer F. E. Pelton showed a prosperous financial condition. J. J. Douglas made the report for the Finance Committee and B. L. Andrews that of the delegates to the national convention.

#### New Officers.

The report of the Committee on Nominations was carried out in the election of the following officers for the ensuing year:

PRESIDENT, L. G. Mattison, Newark.  
FIRST VICE-PRESIDENT, John Holley Bradish, Batavia.  
SECOND VICE-PRESIDENT, John G. Ferres, Johnstown.  
SECRETARY, J. B. Foley, Syracuse.



**TREASURER**, F. E. Pelton, Herkimer.  
**DIRECTORS**, three years, Louis J. Ernst, Rochester; George W. Rockwell, Horseheads; W. J. Hoyt, Wellsville.

**DELEGATES TO NATIONAL CONVENTION**, L. G. Mattison, J. B. Foley, John E. Larrabee, Amsterdam; A. E. Towne, Saratoga Springs; Louis J. Ernst, Rochester.

The delegates were empowered to select their own alternates if unable to attend.

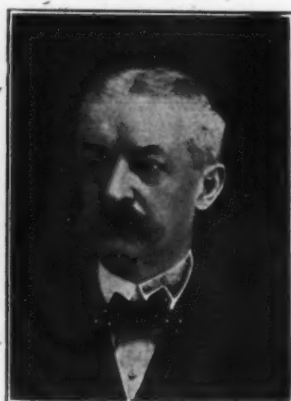
The recommendation of the president bearing upon the term of service of the Committee on Legislation was adopted, so that hereafter it shall date for a year from June 1, which will cover the duration of the sessions of Congress and the State Legislature. This was a result of the report of the committee, headed by John G. Ferres.

Clark Bloss, for the Committee on Organization, urged the encouragement of exhibits by manufacturers at annual meetings. A few minor changes in by-laws, following President Ernst's suggestion, were made upon the recommendation of the Committee on Constitution, headed by Chairman John E. Larrabee.

Giles H. Stillwell, president of the Syracuse Chamber of Commerce, spoke briefly as a representative of the city's association of business men. He spoke strongly of the value of enterprising business methods and the duty



F. E. PELTON.



JOHN E. LARRABEE.

of the business man to his community in employing good methods, a duty which the community is quick to reciprocate. He expressed the hope that Syracuse be made the permanent place of meeting of the association.

#### Methods of Collecting Outstanding Accounts.

The question box developed interesting discussions. After some talk it was unanimously voted that manufacturers' exhibitions in connection with association meetings should be encouraged. The first important question announced by Chairman L. G. Mattison of the Question Box Committee was as to methods of collecting outstanding accounts. J. R. Taylor, Little Falls, stated that he had adopted a system of letters to delinquent debtors, always naming a date by which time payment should be made, and in subsequent letters reminding the customer of failure to respond by payment on the required day.

W. J. Hoyt, Wellsville, told of the results of the formation of a Business Men's Association in his town, in which 90 per cent. of the merchants became members. The three Hardware merchants came together in the matter and adopted a method of stimulating payment of slow accounts. A yellow slip was provided and sent to debtors, informing them that unless the account was settled by a given date the matter would be handed to the Business Men's Association. The result was the prompt payment by hitherto slow pay customers, including accounts which had been considered practically uncollectable.

J. G. Ferres spoke of a similar association and system in Johnstown, which has tended to put retail business on a cash basis. He strongly recommended the sending out of monthly statements, which make a vast difference in securing prompt payment of accounts.

G. A. Tuttle, Palmyra, advocated the declining of very small book accounts, on the theory that such ac-

counts are liable to be overlooked by customers, and that a person should be able to pay cash for 25 or 50 cents' worth of goods.

O. O. Laine, Canisteo, had adopted the monthly system, and his experience at first was that the more frequent bills were considered as duns, but the feeling had worn away with a knowledge of reasons. He gives a 5 per cent. discount for cash, and considers it worth while.

The question of handling small and insignificant accounts brought out other discussion along similar lines.

John H. Bradish, Batavia, told of the old method of sending out bills annually, to the farmers on October 1 and to the townspeople on January 1. Four years ago Mr. Bradish began to send out monthly bills, and has found that one result has been to greatly reduce book accounts. As to small accounts he disliked to give up a whole page of his ledger for a 25-cent account, and asked information as to how others avoided this.

George B. Allen, Buffalo, uses a special, indexed ledger for this class of account.

John G. Ferres uses a card system, which he described. All small accounts are transferred from the charge book to cards about 5 in. long and 4 in. high, kept in a box fitting a space in the safe. The cards are indexed by a tab card for each letter, so that they are easily referred to. When such an account is settled the card, if it still has available space, and if it is presumed that the customer may again ask small credit, is put aside for future use. The cards are ruled to give wider space for charges than for credits.

A. E. Towne, Saratoga Springs, has made every effort to cut out all small accounts, though to rigidly carry out the rule is at times difficult. He tells people frankly that he does not want such accounts. Some trade is lost, but usually in a very small way.

Others joined in the discussion by suggestion or question, and this part of the meeting proved most profitable and interesting.

#### Thursday's Doings.

Thursday was the great day. In the morning the association was the guest of the Camillus Cutlery Company at its works at Camillus, the members going out by special train.

The meeting came in the afternoon and was open to all. The hall was filled. A warm welcome was extended W. P. Bogardus, Mount Vernon, Ohio, former president of the National Retail Hardware Association, who was the first speaker. He made an interesting address, in which he touched upon the catalogue house question and its relation to the parcels post bill in a way that commanded close attention and met with hearty approval.

President Ernst read a letter of regret from George H. Sargent, Sargent & Co., New York, who was unable to be present because of illness and who was on the programme for an address entitled "Looking Backward."

#### The Hardwareman's Advertising.

L. B. Elliott, Rochester, N. Y., spoke on "Advertising in Relation to the Hardware Dealer." His address was in part as follows:

Your advertising should begin in the store. The show window should be utilized to the fullest extent. The display should be changed very often; twice a week is not too often in order that the public may always find something new to look at and to interest it. The Hardware business lends itself particularly well to window demonstrations. A moving mechanical device or a living demonstrator will attract the attention of nearly every passer-by, whereas a still display very often passes unnoticed.

#### THE ARRANGEMENT OF THE INTERIOR OF THE STORE

is of very great importance. An abundance of light, free passageway for customers, orderly arrangement of goods and absolute neatness and cleanliness in every department are forms of advertising that create a favorable impression of the business on the public.

The selection and training of salespeople should be given particular attention. Frequent conferences between the salesmen and the head of the business are very beneficial.

## WHEN A NEW LINE IS TAKEN UP

by the store the salesmen should be called together and given instructions as to the points of advantage and the best methods of selling. Even though the article is handled exclusively by one salesman, the others will gain inspiration and information that will be of value to them. Salesmen should be educated to be prompt and attentive in the Hardware store, as in any other line of business.

## WRAPPING PAPER, &amp;C.

A great deal of valuable advertising can be obtained by the use of attractively printed wrapping paper, bags and boxes in which to inclose articles sold. The purchaser will appreciate attention of this kind, and it costs but little, if any, more than the ordinary method of handling packages.

## CHANGED CONDITIONS.

As to general publicity, the newspaper is the first and most important medium. I notice among the objects of your association is "to place the business of the retail dealer upon such a basis as will enable him to meet the changed conditions of our business life." One of these changed conditions is the absolute necessity for newspaper advertising. The newspaper is the daily companion and source of information for the public. The people have become educated to desire more information and more general information than ever before, and this information can be obtained from the newspaper. An extensive employment of the newspaper by merchandising concerns for advertising purposes and the excellent information contained in their announcements for the guidance of the buying public has created a new condition, in that the public depends to a large extent for its information as to purchases upon the advertisements in the newspapers.

## IT PAYS TO USE LIBERAL SPACE

in the newspaper. The public is going to judge of your business largely from the kind of an advertisement that you put forth. Liberal space gives an opportunity to speak of a number of articles, to get attractive and convincing display, to use attractive illustrations and to command position in the newspaper. A large advertisement is more readily seen and commands more attention. It also shows the public that you have faith in your own business. Liberal space alone, however, will not prove a paying investment. The matter that is used in the space is of even more importance. Absolute truthfulness and sincerity in the advertisement is the keynote of success. Make your advertising in keeping with the news spirit of the newspaper.

## HAVE A STORY TO TELL.

or else do not advertise. If the public finds in each of your announcements something of interest, real information, the public will continue to read your advertisements. If they are deceived once or twice after they have spent their time in reading your advertisement by finding that after all there is nothing of importance told there, the tendency will be to pass over your announcements from that time forward. Tell your story as briefly as possible, but tell it well.

## TAKE THE PUBLIC INTO YOUR CONFIDENCE.

Tell them why you have selected your stock of certain makes of Tools, Razors, Scissors, Pocket Knives and Skates. Take up the different specialties you handle and tell the people what use can be made of them in the household, in the machine shop. Make your advertising reasonable. When the time for mince pies and stuffing turkeys arrives have your Meat and Food Choppers in the foreground. When the building season opens up push Carpenters' Tools and Building Hardware. When the spring breezes start the grass and flowers get up a special set of Lawn Tools. Show up the Lawn Mower. Make a specialty of it. Tell the people how they can save time and have a better lawn by the use of a Grass Catcher. Tell the householder the value of a Lawn Roller, and so on through the list. There are hundreds and thousands of people in every locality who go through their daily routine without stopping to think how much easier or better they could do the work if they had the right Tools. Many of them do not know of new inventions, or even of many old ones for labor-saving purposes.

## IT IS THE PROVINCE OF THE HARDWARE DEALER TO EDUCATE THE PUBLIC

in regard to these Tools and their uses, and thereby create a demand that did not exist before. Too many dealers figure on the basis that there are so many hundreds of pairs of Shears sold in their town each year, so many hundred of pairs of Skates, so many dozen of Lanterns, Food Choppers, &c., and the only question with them is what proportion of that business they can get for

themselves. The man who ignores that proposition entirely and devotes himself to the task of creating new business will, in so doing, not only reap a larger share of existing business, but will have an exclusive clientele to fall back on that his competitor will find very difficult to divert from him.

It pays to use good illustrations in newspaper advertising, and with the present methods of making illustrations these can be had at comparatively small cost.

## CATER TO THE EYE.

The public is largely eye-minded. Impressions are more quickly received through the eye than through type matter. A good picture of an article will often sell more of them than any amount of type matter, and any good picture will serve to attract attention and fix the eye on the advertisement. Fancy pictures are of little use themselves. Illustrations showing the articles in actual use where practical are the most satisfactory in making up a display advertisement. Do not try to put in too much matter, use good white space all around your type matter. The more easily the advertisement is read the more certain you are of having it read.

Change your advertisement every time it appears. Many dealers think that it is simply sufficient to keep the name before the public. If you will call to mind your circle of acquaintances, you will find that some of the best known names are known chiefly for unprogressiveness.

## THE INSERTION OF A SET ANNOUNCEMENT

of any store tends to create in the minds of the public the impression that there is nothing new in that store. Then again the advertiser who puts before the public 365 different arguments in the year, telling about 365 different articles, has 365 more chances to interest the possible purchaser than the man who runs the same advertisement continuously.

The great drawback to progressive advertising in many retail stores is the lack of time or ability on the part of the proprietor to prepare the proper kind of advertisements and illustrations. Let me suggest that if there is no competent firm in your city that devotes itself especially to the preparation of advertising,

## SELECT SOME YOUNG MAN

from among the sales force and give this work over to him. He will take a great deal of interest in it as a rule, and will be continually striving to outdo your competitors in the advertising pages of the paper. With your assistance he will be able to prepare daily advertising matter that will be of real value.

## MANUFACTURERS' HELP.

Finally, let me call your attention to the assistance that you can obtain from the manufacturers. There is scarcely a manufacturer of Hardware or Hardware Specialties in the country who is not alive to the importance of advertising, and once he finds that you are also alive to its importance and will use intelligently and conscientiously the advertising matter that he may place in your hands, he will go to almost any length you may desire in supplying you with circulars and booklets that you can inclose in every package that leaves your place of business. In many cases he will furnish you with illustrations and electrotypes of ready-made advertisements that have been prepared with great care, and will prove very effective when used in your regular advertising space. He may even be willing in some cases to assist you by bearing part of the expense for a newspaper campaign in pushing the sale of his particular specialty for a time until it is introduced in your locality. He will be able to make valuable suggestions to you as to how you can best advertise his particular product, because he has gone through the mill himself and has found out by paying the bills the best way to do it.

## W. M. Pratt's Address.

W. M. Pratt of Goodell-Pratt Company, Greenfield, Mass., and a vice-president of the American Hardware Manufacturers' Association, made an admirable address of considerable length on the subject of "Tool Topics," which was universally commented upon for its excellent suggestions.

## Percentage of Expense.

Various opinions were expressed as to the "percentage that total expense should bear to total sales," ranging from 15½ to 25 per cent. Several members gave favorable opinions as to the merits of loose leaf inventory systems. The value of premiums as a means of attracting trade brought out a variety of generally unfavorable opinions.



### Collection Agencies.

There was some discussion as to the employment of collection agencies in collecting slow accounts, the practically unanimous opinion being that the ordinary agency is mischievous to business, but that an attorney charging reasonable percentage is satisfactory for this purpose. The clubbing together of merchants to employ the same lawyer for collecting bills was advocated as the result of the experience of several members.

### Resolutions.

Chairman F. E. Pelton of the Committee on Resolutions embodied in his report a resolution that the association extend to Secretary J. B. Foley hearty sympathy and sincere hope of recovery, and "that much of the success of this convention is due to the careful preliminary work which he has done, and the courteous and faithful services he has rendered have been of vital interest to the association since its formation."

A resolution expressed thanks to C. P. Sherwood for his labors at his stepping into the breach when Mr. Foley was stricken, and the sentiment was expressed that "We feel the success of the Hardware exposition is largely due to his untiring efforts and business management." There was a resolution favoring good roads, and another thanking Acting Mayor Sadler for his welcoming words.

The following resolution was adopted relative to the advance in Stoves and Stove Repairs:

*Resolved*, That we, the Retail Hardware Association of the State of New York, consider the last advance on Stoves and Stove Repairs unnecessary and unreasonable; also one that places an extra burden on the trade, making it all the harder to compete with catalogue and mail order houses, also Range peddlers; and we do most emphatically protest against any further advance, as announced by the Stove Association, and that should it occur the president is hereby authorized to appoint a committee of three to investigate the increased cost to manufacture Stoves and also the methods of the Stove Association and report the same to the president, and he is further hereby authorized to take action necessary to protect the members of the association.

### The Banquet.

The banquet was at the Yates Hotel, with a very large and very representative attendance, which included a goodly number of ladies. John G. Ferres was a graceful toastmaster, and other speakers were Hon. Theodore E. Hancock, Syracuse, ex-Attorney-General of New York; W. P. Bogardus, William M. Pratt and E. C. Neal, Buffalo. Marshall P. Wilder, the humorist, told amusing stories. The speakers' remarks were rich in humor, coupled with more serious topics. There was singing by the assembled guests, which added to the gayety of the evening. The Banquet Committee consisted of John Holley Bradish, L. G. Mattison, John B. Foley, W. E. Cook, F. E. Pelton, J. G. Ferres and Charles P. Sherwood.

### EXHIBITS AND EXHIBITORS.

The exhibition by manufacturers and jobbers was a very representative one of the products which go to make up the stock of the Hardware merchant. The modern trend of the trade was strongly in evidence. The manufacturers of Paints and kindred materials were much in evidence, recognizing that the Hardware merchant has come to consider Paints and Varnishes and the like as not only legitimate, but very profitable lines. Stoves, Ranges and Furnaces were equally well represented for the same reasons.

The chief drawback was lack of space, every foot of available space being occupied and exhibitors crying for more. Several secured quarters at the Yates Hotel for this purpose.

The accepted idea, as expressed on all sides and in the meetings, was that the exhibitions are important in increasing the value of the meetings, in the benefit to members in the bringing out of a larger attendance, as a strong talking point in increasing the membership, and as a source of revenue, for the New York association netted a handsome profit above all expenses of the convention building. An important feature of the exhibition was the discriminating admittance of the public. The local merchants were given tickets, which they distributed to customers and those who may be customers, thus affording them free entrance to the hall. A great many interested persons, both men and women, availed themselves of the opportunity, to the mutual advantage of exhibitors and merchants.

The exhibitors were as follows:

ACME WHITE LEAD & COLOR WORKS, Detroit: Represented by W. J. Carlyle and H. C. Woodworth.  
AMERICAN MULTIGRAPH COMPANY, Cleveland, Ohio: E. B. Quackenbush and R. W. Phelps.

AMERICAN STEEL & WIRE COMPANY, New York: Represented by L. A. Dietrich, F. B. Shepard, J. G. Gill and H. C. Pratt.  
ATKINS, E. C., & Co., Indianapolis, Ind.: Saws. Represented by J. F. Carey and S. F. Perrigo.  
BERGER MFG. COMPANY, Canton, Ohio: Sheet Metal Goods. Represented by I. J. Shultz, H. L. Mackenzie and Harry G. Bow.  
BLACKSTONE MFG. COMPANY, Jamestown, N. Y.: Washers. Represented by D. P. Hicks.  
BUFFALO WHOLESALE HARDWARE COMPANY, Buffalo: H. E. Bristol, A. W. Weaver, C. H. Elliott, J. A. Pratt, W. S. Boyde and John P. Becker.  
BURHANS & BLACK COMPANY, Syracuse: Represented by J. W. Black, E. W. Swift, Charles Dietel, Duane Eggleston, A. L. Hammond, Patrick Brown, Burt Harrington, Edward Chollar, Michael Hayes, Alonzo Strong, John Spiera.  
BUTLER & JOHNSON, Syracuse: Aluminum Oil Heaters. Represented by W. P. Butler.  
CARBORUNDUM COMPANY, Niagara Falls, N. Y.: Sharpening Stones and Specialties. Represented by George N. Allen and L. M. Haskins.  
COLDWELL LAWN MOWER COMPANY, Newburgh, N. Y.: Represented by H. T. Coldwell and A. C. Wilson.  
CO-OPERATIVE FOUNDRY COMPANY, Rochester, N. Y.: Red Cross Ranges. Represented by C. B. Kelley, J. W. Ross and N. R. Bond.  
CORBIN CABINET LOCK COMPANY, New Britain, Conn.: Represented by George F. Taylor, D. E. Brainerd of the Corbin Company, and C. R. Converse, F. B. Foster, R. W. Ford, E. B. Calkins, A. L. Sovercool, H. H. Kimball and C. A. Atwater of Barker, Rose & Clinton Company, Elmira.  
COX, ABRAHAM, STOVE COMPANY, Philadelphia: Represented by E. E. Pennewill, J. F. Hart, Edward E. Barton, N. J. Fuller and H. E. Sherwood.  
DEALERS' STEAM PACKING COMPANY, Palmyra, N. Y.: Represented by Franklin Brown and J. P. Ballau.  
DOMINION CARTRIDGE COMPANY, Montreal, Can.: Ammunition. Represented by C. Edward Wood, James Ross and F. L. Halford.  
ESTATE OF P. D. BECKWITH, Dowagiac, Mich.: Round Oak Stoves, Ranges, Furnaces. Represented by C. B. Harris, H. P. Mosher and Samuel Skinner.  
FULLER & WARREN COMPANY, Troy, N. Y.: Stoves and Ranges. Represented by C. K. Eastwood and F. O. Beattie.  
GALUSHA STOVE COMPANY, Rochester, N. Y.: Represented by Henry M. Doyle and W. P. Miller.  
GLIDDEN VARNISH COMPANY, Cleveland: Jap-a-Lac. Represented by George C. Choate and Mathew Kehoe.  
GOODELL-PRATT COMPANY, Greenfield, Mass.: Small Tools. Represented by W. M. Pratt, J. G. Stevens and G. H. Warren.  
HESLER, H. E., COMPANY, Syracuse: Mail Boxes, Ash Sifters, Stove Repairs, &c. Represented by Jacob Wagner, Michael McGuire and N. T. Altzhauser.  
HOPKINS & ALLEN ARMS COMPANY: Represented by Edward E. Perry.  
HURLEY MFG. COMPANY, New York: Little Giant Floor Scraper. Represented by N. H. Haberle.  
KAMPE BROS., New York: Star Safety Razors. Represented by Albert L. Hunt.  
KELSEY HEATING COMPANY, Syracuse. Represented by R. H. Bradley and E. B. Bradley.  
LANDERS, FRARY & CLARK, New Britain, Conn.: Universal Coffee Percolator, Bread Mixer, Cake Maker and Food Chopper. Represented by Will T. Hedges, T. N. Bristol and L. L. Redick.  
LASHER, C. W., MFG. COMPANY, Davenport, Iowa: Pot Covers and Dealers' Cabinet, Kitchen Kufort Plate Scraper. Represented by C. W. Lasher.  
LIBBY, HARLOW & Co., Boston: Dog Collars and other dog out-fittings. Represented by N. S. Bristol.  
LISK MFG. COMPANY, Canandaigua, N. Y.: Enameled, Tin, Galvanized and Antirust Ware. Represented by W. D. Summers and W. T. Young.  
LOWE BROS. COMPANY, Dayton, Ohio: Paint Products. Represented by W. R. Platt, George L. Paine, D. P. Grant and C. J. Parkhurst.  
MCINTOSH HARDWARE CORPORATION, Cleveland: Represented by E. R. Pughes.  
MALLEABLE STEEL RANGE MFG. COMPANY, South Bend, Ind.: Represented by R. W. Gough.  
NEVIN, T. H., COMPANY, Pittsburgh: White Lead and Paint. Represented by H. R. Gibbs.  
OHIO VARNISH COMPANY, Cleveland: Represented by W. F. Fout and F. E. Keeler.  
PETERS CARTRIDGE COMPANY, Cincinnati: Represented by George R. Benjamin.  
PIKE MFG. COMPANY, Pike, N. H.: Oilstones, Razor Hones, Corundum Wheels. Represented by E. Bertram Pike, Maurice Gaudry and Herbert J. Hill.  
PITTSBURGH STEEL COMPANY, Pittsburgh, Pa.: Represented by J. F. Williams, H. M. Brooks and C. T. Burkhardt.  
PRATT & LAMBERT, Buffalo: Varnishes. Represented by A. S. Butler, H. S. Prescott and C. W. Ritter.  
PRITCHARD-STRONG COMPANY, Rochester, N. Y.: Lanterns. Represented by R. B. Alvord.  
RATHBONE, SARD & Co., Albany, N. Y.: Acorn Coal Ranges and Combination Ranges.  
REED MFG. COMPANY, Newark, N. Y.: Antirust Sheet Metal Goods. Represented by G. G. Stuart, C. W. Marshall, M. J. Darling and C. W. Lewis.  
REPUBLIC METAL WARE COMPANY, Buffalo: Represented by C. C. Ward, C. H. Kent, R. T. Eddy, W. F. Kieffer and C. F. Wittie.  
REMINGTON ARMS COMPANY, Ilion, N. Y.: Represented by F. B. Clark.  
ROBERTS HARDWARE COMPANY, Utica, N. Y.: Owner Continental Tool Company, line of Continental Garden Tools. Represented by W. H. Roberts, David Murray, John W. Green, T. B. Hubbell, James M. Eiffe, H. J. Bellosa, W. H. Floyd and J. C. Bolles.  
ROBESON CUTLERY COMPANY and ROCHESTER STAMPING COMPANY, Rochester, N. Y.: Represented by G. W. Robeson, C. W. Gillette, C. V. Lewis and F. J. Cross.  
SAVAGE ARMS COMPANY, Utica, N. Y.: Firearms. Represented by Harry E. Haynes.  
SHERWIN-WILLIAMS COMPANY, Cleveland: Paints. Represented by L. J. Pasquellie, E. A. Kydd, A. D. Collins, H. T. Sheldon and G. A. Durward.  
SHERWOOD METAL WORKING COMPANY, Syracuse: Metal Frame Adjustable Screens. Represented by J. E. Sherwood and O. D. Blanchard.  
SILL STOVE WORKS, Rochester, N. Y.: Sterling Ranges and Heaters, Combination Gas and Coal Ranges. Represented by B. M. Ross, E. B. Ross and W. G. Hendershott.  
SIMMONS HARDWARE COMPANY, St. Louis: Represented by Frank J. Semple, A. C. Penn, E. E. Hall, Thomas H. Paterson and John N. Hunter.

SIMONDS MFG. COMPANY, Fitchburg, Mass.: Represented by G. T. Curtis, F. L. Mercier and R. D. Baldwin.  
 SMITH, F. A., MFG. COMPANY, Rochester, N. Y.: Mantles and Supplies. Represented by J. A. Millener.  
 STARRETT, L. A., COMPANY, Athol, Mass.: Fine Mechanics' Tools. Represented by F. A. Ball and James D. Grant.  
 SUN STOVE COMPANY, Detroit: Gasoline, Oil and Gas Stoves. Represented by W. H. French.  
 SYRACUSE STOVE WORKS, Syracuse: Represented by A. E. Coe, W. H. Owens, J. F. Bunn, W. R. Sherman, L. H. Soper and F. R. Harmon.  
 WEED & CO., Buffalo: Jobbers. Represented by C. E. Woepffel, C. E. Wells, L. G. Humphrey, F. H. Mathews, Leo B. Kirsh and George P. Tolson.  
 WHITE LILY WASHER COMPANY, Davenport, Iowa: Represented by R. P. Searle.  
 WHITE MOP WRINGER COMPANY, Fultonville, N. Y.: Mop Wringer. Represented by O. N. Wardwell.  
 WHITMAN & BARNES MFG. COMPANY, Chicago: Agricultural Implements, Hay Cars, Grindstones, Lawn Mowers, Twist Drills, Reamers, Wrenches. Represented by J. S. Wood and S. M. Kitchen.  
 WINCHESTER REPEATING ARMS COMPANY, New Haven, Conn.: Represented by George R. Ginn.

Other jobbers and manufacturers present were:

BUFFALO CO-OPERATIVE STOVE COMPANY, Buffalo: Represented by Charles P. Smith.  
 CO-OPERATIVE FOUNDRY COMPANY, Rochester, N. Y.: Represented by N. R. Bond.  
 F. W. DEVOR & C. T. REYNOLDS COMPANY, New York: Represented by J. H. Selleck and F. D. Everts.  
 E. I. DU PONT DE NEMOURS POWDER COMPANY, Wilmington, Del.: Represented by B. H. Norton.  
 ENTERPRISE MFG. COMPANY, Philadelphia: Represented by Alfred J. Clyme.  
 GARRY IRON & STEEL COMPANY, Cleveland: Roofing and Steel Plate.  
 JEWELL BELTING COMPANY, Hartford, Conn.: Represented by Scott C. Ball.  
 LOVELL MFG. COMPANY, Erie, Pa.: Represented by W. S. Hathaway.  
 MATHEWS & BOUCHER COMPANY, Rochester, N. Y.: Represented by W. P. Foster, J. C. Williamson, J. H. Bacon, E. E. Parker and W. F. Brinsmaid.  
 NEW JERSEY WIRE CLOTH COMPANY, Trenton, N. J.: Represented by S. McClelland.  
 PENINSULAR PAINT & VARNISH COMPANY, Buffalo: Represented by W. J. Cole.  
 PIERCE, BUTLER & PIERCE MFG. COMPANY, Syracuse: Represented by H. A. Kehoe.  
 PITTSBURGH STEEL COMPANY, Pittston, Pa.: Represented by J. P. McKaig.  
 SARGENT & Co., New Haven, Conn.: Represented by Scott C. Ball.  
 STANDARD ENAMELED WARE COMPANY, New York: Represented by Frank E. Ferguson.  
 STANDARD PAINT COMPANY, New York: Represented by J. E. Landy.  
 WEIR STOVE COMPANY, Taunton, Mass.: Represented by W. H. Barker.

#### Souvenirs.

There was an uncommon abundance of souvenirs for distribution by exhibitors. Among them were the following:

ACME WHITE LEAD & COLOR WORKS, Detroit: Pocketbook and hat pin.  
 AMERICAN STEEL & WIRE COMPANY, New York: Packages assorted Tacks, letter opener.  
 E. C. ATKINS & Co., Indianapolis, Ind.: Watch fob, pocket comb.  
 BARKER, ROSE & CLINTON COMPANY, Elmira, N. Y.: Syracuse Toy Cannon and Ammunition.  
 CORBIN CABINET LOCK COMPANY, New Britain, Conn.: Pocket atlas, cuff buttons, mezzotint picture of caged lion secured by Corbin Lock.  
 CARBORUNDUM COMPANY, Niagara Falls, N. Y.: Knife Sharpener.  
 CRONK & CARRIER MFG. COMPANY, Elmira, N. Y.: Check perforator.  
 DOMINION CARTRIDGE COMPANY, Montreal: Souvenir post card.  
 F. W. DEVOR & C. T. REYNOLDS COMPANY, New York: Note book.  
 ESTATE OF P. D. BECKWITH, Dowagiac, Mich.: Stein, pin.  
 GALUSHA STOVE COMPANY, Rochester, N. Y.: Pocketbook.  
 H. E. HESLER COMPANY, Syracuse: Pocket mirror.  
 KAMPE BROS., New York: Celluloid calendar and memorandum.  
 LOWE BROS. COMPANY, Dayton, Ohio: Fob, stick pin, button.  
 MALLEABLE STEEL RANGE MFG. COMPANY, South Bend, Ind.: Fob.

T. H. NEVIN COMPANY, Pittsburgh: Fob.  
 PETERS CARTRIDGE COMPANY, Cincinnati: Button, stick pin.  
 PIKE MFG. COMPANY, Pike, N. H.: Blotter.  
 PITTSBURGH STEEL COMPANY, Pittsburgh: Wire puzzle.  
 PRITCHARD-STRONG COMPANY, Rochester, N. Y.: "Uncle Obediah" button, souvenir post card.  
 REED MFG. COMPANY, Newark, N. Y.: Match safe, ash tray.  
 ROBESON CUTLERY COMPANY, Rochester: Pocket Knife.  
 SHERWIN-WILLIAMS COMPANY, Cleveland: Cuff buttons.  
 SIMMONS HARDWARE COMPANY, St. Louis: Note book, button and badge.  
 L. A. STARRETT COMPANY, Athol, Mass.: Eye glass, Screw Driver, scarf pin.  
 WEED & Co., Buffalo: Fob.  
 WHITE LILY WASHER COMPANY, Davenport, Iowa: Ink stand.  
 WHITMAN & BARNES MFG. COMPANY, Chicago: Fob.

#### ADVERTISEMENTS IN READING COLUMNS

FRED. P. STRAUB & CO., who carry on an extensive Hardware business at Evansville, Ind., buying and selling for cash only, confine their newspaper advertising to what are known as "locals," making no effort in the direction of large display announcements. These paragraphs, appearing as they do on different pages and right in the midst of news matter and set in the same type, are found to be very effective and serve admirably the purpose for which they are intended. To afford an idea of the character of these advertisements we reproduce the following:

New lot of Folding Go-Carts, Boys' Wagons, Velocipedes and Tricycles, Lawrence best Paints and Varnishes. Home savings banks, with key, \$1.00. Fred P. Straub & Co., 224 Main street.

Clothes Wringers, \$1.25 and up; Washing Machines, \$2.50 and up; Potts' nickel-plated Irons, \$1.00 set; Asbestos and Fluting Irons, Big Dollar Alarm Clocks, 75c.; Food Choppers, 50c. and up. A fine line of best enameled and tin ware at special low prices. Ladders, 35c. and up. Bird Cages, 50c. and up. Fred P. Straub & Co., Hardware Dealers.

Buy the best tools at 224 Main street. They have a fine line of Carpenters', Coopers', Bricklayers', Plasterers', Butchers' and Barbers' Tools. Bargains in boring machines, Post Hole Diggers, Building Hardware and Nails. Ingersoll guaranteed watches, \$1.00 and up. Fred P. Straub & Co., next door to People's Savings Bank. See prices in their show windows.

It will be observed that prices are mentioned here and there, while in one instance the public is invited to note prices in the firm's show windows, thus calling attention indirectly to the exhibits made therein, which are frequently changed. These "locals" appear in all the dailies and also the Evansville weekly papers, so that a wide circulation is secured. Most of the time they refer to seasonable goods, but occasionally staples are mentioned.

In addition the firm mails and distributes circulars and other printed matter, which manufacturers are glad to furnish free of charge, with the name of the house printed thereon.

## Indiana Retail Hardware Association.

THE importance of the eighth annual convention of the Indiana Retail Hardware Association, held last week at Indianapolis, may be gathered from the fact that close to 2000 men connected with the trade are estimated to have been present. With every detail carefully prearranged and carried out to a nicety, with an imposing Hardware show ably handled and effectually dissociated from the meetings, and with business sessions fully attended, capably directed and actively participated in, it may be said without reserve that the convention altogether left nothing to be desired. The Indiana Association, which has always been recognized as a pioneer in organized trade effort, seems this year to have solved every perplexing convention problem and set a new standard in the model series of meetings just concluded.

#### Attendance.

The association membership is between 600 and 700, and from the number of retailers' badges actually distributed it would appear that not only was there a very full representation of the firms on the roll, but two and even more from some houses must have been present. An accurate count of the attendance at the first executive session, Wednesday afternoon, ran above the 500 mark, although nonmembers were rigorously excluded at the door. The place of meeting, which was the largest room afforded in the Denison Hotel, was crowded to overflowing, but the programmes were so interesting and the discussions so animated and instructive that no difficulty was experienced in preserving absolute order. Even those in the remote corners of the room were able to get the full benefit of everything that was said.



**Hardware Show.**

The Hardware exhibit, occupying a hall some two blocks from the hotel, was undoubtedly one of the finest that has been held in connection with retail conventions. Unstinted credit is due to C. E. Hall, Albert De Prez and Otto E. Lang, the committee, to whose executive ability and untiring efforts the success was due. It is worthy of mention that persons not connected with the trade were strictly excluded from the exhibition hall. It was a Hardware show for Hardwaremen, and the curious throng of souvenir hunters, which has marred so many similar affairs, was conspicuously absent. The exhibits themselves were of a very high order and were individually handled by well informed and courteous representatives; in fact, prominent executives from many of the exhibiting firms were present. Want of space in our columns forbids a detailed description of many elaborate and expensive booths, which deserve such recognition. A complete list, however, of the exhibits installed, with the names of those in charge, will be found elsewhere in this report.

**President's Address.**

The annual address of President Frame, delivered at the opening session, Tuesday afternoon, was in part as follows:

Our annual conventions have taken on the air of Hardware exhibitions. Your officers are pleased that their efforts in this line enable us to see and examine all the new things in Hardware and kindred lines. These exhibitions are great schools for us. Manufacturers and jobbers are represented here by beautiful displays of their goods and have men in charge who are the best of fellows—experts in their lines. You cannot talk with one of these men without learning something that will do you good. Let us spend as much time as we can among these exhibits and we will profit by it.

**GETTING THE BENEFIT OF ADVANCES.**

These prosperous times have increased the value of merchandise all along the line. Many of us have in our stores goods that were bought at less than they could be bought to-day. Let us not fail to take advantage of these market conditions and make our selling prices conform to what the goods would cost at the present time. It is easy money and it belongs to us; why not get it? We should follow the markets just as promptly as our jobbing friends, who do not wait until they buy again to change their selling prices, as so many of us are in the habit of doing.

**BUSINESSLIKE HANDLING OF ACCOUNTS.**

Let us take advantage of these good times to educate our customers to settlement of their accounts at frequent intervals. Those of us who do business in smaller towns and have farmer customers are in the habit of letting our goods go out on charge accounts with no specified time for payment. Frequently these accounts run too long, and how often have we been compelled to lose discounts because our customer was not ready to settle with us when we needed the money? I believe this can be remedied by having your trade understand that a limited time only is given on charge accounts; say 60 days as the extreme limit, and insist upon a settlement at that time.

Tendencies are toward a nearer cash business, and we can all help toward that end if we will. You don't want a man's business if it is not profitable, and how many times have we sold goods on credit and waited so long for our money that the interest on the account was as much as our profit?

Our greatest competitors get the money in advance, and at the price we must sell our goods to meet their competition it is necessary that we get our money at the time of the sale, or within a stated period.

**MEETING IRREGULAR COMPETITION.**

Our competitors are of many kinds, from the lumbermen who keep Builders' Hardware as a means of selling their lumber, to the racket store which buys a few staples in Hardware and sells them at a very low price to advertise his notions and other goods. To meet these conditions, which in no two towns are alike, I think everyone must work out his own salvation, as the conditions that exist in your town are entirely different from what they are in others. You will pardon me if I get a little personal to illustrate what I mean by telling you how I do in my own business. In the first place,

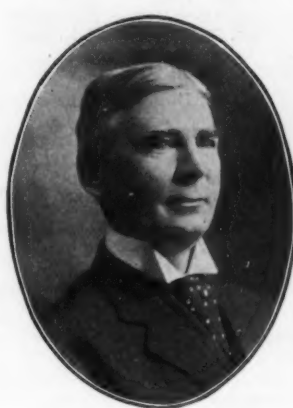
**WE ALWAYS MEET THE PRICE.**

How could you expect a man to pay you more for an article than he could get it for over on the other street?

We feel that we are not entitled to our customer's trade unless we sell him goods as cheap as he can buy anywhere. We always try to make a low priced article sell something on which there is a better profit. Last fall we were asking \$6 for No. 35 — Lard Presses, and learned early in the season that a competitor was selling these goods at \$5.50. Our price was reduced to \$5 at once. We advertised it with the price in connection with other Butcher Tools, with the result we sold about 10 stuffers at cost, but never had such a trade on Meat Choppers, Lard Cans and other Tools that paid good profits. We sold two gross of Butcher Knives at 35 cents each that cost us \$1.40 a dozen. No doubt, some dealers in neighboring towns have set us down as price cutters, but they didn't know we were selling Butcher Knives at a big profit by offering Stuffers at cost and at the same time protecting ourselves against our competitor who was trying to create the impression that his was the only place to buy goods cheap.

**THE CATALOGUE HABIT IS GROWING LESS**

every day. This has been brought about by various causes. As many manufacturers have refused to sell them they have been unable to fill orders promptly. This has largely been accomplished by the systematic work of our Catalogue House Committee, and many retailers have opened a campaign of education among their customers who have had this disease of patronizing mail order houses. Show your customer that he cannot save money by buying his goods away from home and one of the best ways to show him is to sell him goods at the



CHAS. B. FRAME.



FRED W. BARTHOLOMEW.

same price as his catalogue house will. This is an age of specialists. It is necessary for us to know our business and know it thoroughly. Know your goods.

**KNOW YOUR CUSTOMER.**

He has weak spots. Study them. Attack the weaker places. One of these is his heart, and his pocketbook is very close to it. Meet the price on Strap Hinges and Hasps and some other leaders and you will have no trouble in selling him the other goods he needs at good profits to yourself and with satisfaction to him.

**PAINT LEGISLATION.**

There will probably be presented to our present Legislature a Pure Paint bill similar to the one passed last year by the North Dakota Legislature. This law prevents any dealer from offering for sale any White Lead that is not pure Carbonate of Lead, while Mixed Paint must be pure Lead, Zinc and Oil; but the law does not prevent the consumer from buying any kind of mixture out of the State and shipping it in for his own use. Indiana cannot legislate for Missouri or Illinois and interstate commerce allows the manufacturer there to ship into our State anything he chooses to call Paint provided the man who buys it does not offer it for sale again. Should this bill be presented, our association should use its voice against its passage.

**Guests and Greetings.**

Representatives of three other State associations were present; C. F. Ladner, St. Cloud, representing the Minnesota Association; H. L. McNamara, Janesville, representing the Wisconsin Association, and S. R. Miles, Mason City, from the Iowa body. All three of the gentlemen are officers in their respective State Mutual Insurance companies, and made informal addresses on this subject at the opening session. There is no Mutual Insurance Company in the Indiana Association, and its members are

large holders of policies in the neighboring State companies. The gentlemen mentioned were again introduced at the executive session Wednesday, and responded briefly, Mr. Miles referring especially to matters relating to the National Association, of which he is first vice-president.

Complimentary messages were received by telegraph from the Iowa and Connecticut associations contemporaneously in session, and dispatches were sent in reply. A message of greeting and good wishes was also received from Secretary Bare of the Ohio Association.

#### Address of E. M. Bush.

E. M. Bush, Evansville, ex-president of the Indiana Association and now president of the National Retail Hardware Association, delivered an address marked by



S. L. OCKER.



W. B. CREED.

characteristic comprehensiveness, clearness and force. Mr. Bush has from the start been identified with the joint Catalogue House Committee, and is at present its acting chairman. His remarks referred in some detail to work done by that body as well as to various other topics now commanding the interest of the trade.

#### Convention Committees.

The following committees were appointed by President Frame and rendered efficient service. Their reports were carefully prepared and were rendered promptly when called for at the closing session of the convention:

**LEGISLATION:** Mr. Reichenbaugh, N. R. Stoner, Irving Reid, T. J. Lindley, W. H. Bruger, E. Anderson, E. B. Schenk.

**RESOLUTIONS:** James L. Fulton, Fred W. Bartholomew, A. J. Baerteck, R. E. Horner.

**GRIEVANCE:** M. L. Lewis, N. H. Strong, A. H. Burkett.

**AUDITING:** John Steineck, W. H. Hatfield, George Weisland.

**NOMINATING:** M. M. Hamilton, M. W. Coates, Wm. A. Shipley.

#### Officers for 1907.

In connection with the report of the Nominating Committee, a resolution was presented and passed increasing the salary of the secretary to \$600 per year; \$200 additional remuneration was voted to the secretary for his services during the past year. It was also decided, on recommendation of Mr. Corey, to divorce the offices of secretary and treasurer, inasmuch as the latter office is becoming one of increased responsibility, as a result of the growing financial strength of the association. Barring this change the leading officers were all re-elected and the roster for the ensuing year stands as follows:

**PRESIDENT,** Charles B. Frame, North Manchester.

**FIRST VICE-PRESIDENT,** W. B. Creed, New Albany.

**SECOND VICE-PRESIDENT,** Fred W. Bartholomew, Michigan City.

**SECRETARY,** M. L. Corey, Argos.

**TREASURER,** Charles E. Hall, Indianapolis.

**EXECUTIVE COMMITTEE:** C. E. Hall, Indianapolis; S. L. Ocker, Roan; M. W. Coates, Kokomo.

**DELEGATES TO NATIONAL ASSOCIATION:** S. E. Jones, Richmond; C. E. Hall, Indianapolis; J. L. Fulton, Portland; Albert De Prez, Shelbyville; M. M. Hamilton, Brownstown; Wm. A. Shipley, Lafayette; Charles B. Frame, North Manchester. Alternates: Elmer Nichols, Anderson; Louis Kinderman, Boonville; H. E. Grube, Plymouth.

#### Report of Secretary Corey.

M. L. Corey, Argos, the efficient and popular secretary of the association and secretary also of the National Association, delivered an extended report, expressing his growing pride in the Indiana Association, the good it has done and the evils that it has mitigated or corrected. As treasurer his report showed the finances to be in a most flourishing condition, with a rapidly accumulating balance in the bank. The following extracts are quoted from Mr. Corey's report:

There have been several complaints. Nearly all have been adjusted satisfactorily. There is a tendency on the part of some jobbers to sell parties not engaged in the trade. Upon following up such cases we frequently find that a commission has been allowed some dealer in an adjoining town. There may be times when such business is desirable, but we submit to you that its final result is demoralizing and unsatisfactory. If the jobbers or manufacturers in making such shipments would write the name of the firm through whom the sale is made on the shipping tag it would relieve them from the charge of selling direct.

#### TRANSPORTATION PROBLEM.

Many of you have been annoyed and perhaps damaged during the last year by slow shipments. It is the custom nowadays to lay all the blame on the railroads, and in nearly every State drastic legislation is being enacted. As business men we should give other interests the same consideration we ask for ourselves. The conditions to-day are unusual. Our transportation facilities are undoubtedly inadequate, and unable to move our enormous crops and products with the dispatch that modern business requirements demand; it certainly is the railroads' desire to move the greatest amount of freight possible, for their profits depend upon this; they are surely being hampered to some extent by the Interstate and Hepburn rate bills; many newspapers continually encourage antagonistic public sentiments, while socialistic advocates urge Government ownership. Too much regulating and restrictions will frighten capital and block the wheels of general progress. We earnestly condemn the high handed, dishonest, watered stock manipulation of some of the overpaid managers of our railroads, but underneath this lies a wonderful system of business enterprise, employing thousands of people, requiring the highest grade of intelligence and to whose service we often intrust our lives and commercial success. Under our plan of government public sentiment wields a controlling influence on every enterprise. The business man particularly should be fair and broad in considering these great questions. The transportation facilities must keep pace with our rapid growth and progress. Our ever increasing products must be moved quickly and cheaply.



M. L. COREY.



E. M. BUSH.

Railroads never can do this if we embarrass them with too much adverse legislation.

#### MECHANICS' LIEN BILL.

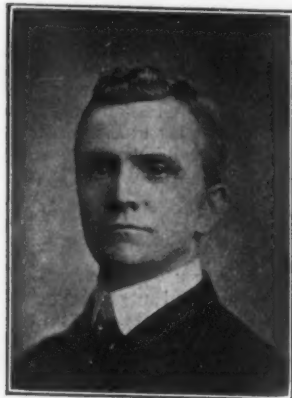
A bill has been introduced in the Legislature, at the request of the Builders' Exchange and the General Contractors' Association of this city, by Representative Billingsley, to make a change in the present mechanics' lien law that would take away the most necessary provision, so far as the furnisher of the material is concerned. At present if you furnish Hardware or building material you can file a lien against the property if your bills are not paid. The proposed bill waives the privilege, so far as material is concerned, but labor employed by the contractor still has the rights as at present. In the words of one of the supporters of the bill: "Dealers in material must be careful to sell to only honest contractors, if they expect to get their money." We have not seen a copy of this proposed measure, and on the face it looks like the



rankest kind of class legislation. It should be investigated and your representative posted, so that such freak legislation may not slip through unnoticed and unopposed.

#### PAINT BILLS.

Two bills have been introduced into the Senate, numbered 319 and 329, respectively, regulating the sale and the manufacture of Paint. One provides that no one can sell or offer for sale any Mixed Paint that does not state on the label the exact name and per cent. of each ingredient entering into its composition; also whether it be full or short weight. The other bill goes further and



SHARON E. JONES.



J. L. FULTON.

states conditions that would make it almost impossible for a manufacturer or retailer to honestly comply with. Perhaps 90 per cent. of all the Paint sold in Indiana reaches the consumer through the Hardware stores. We therefore are very much interested in any legislation that affects its sale or manufacture. This question will come up during our meeting and will be fully explained. However, I want to tell you that any Paint law that Indiana may pass will not compel any mail order house to furnish honest goods nor full measure of Paints they ship to consumers in our State. They can use any sort of label they please and make any claim they see fit; the Interstate law will protect them. If our Legislature can so frame a Paint law that we and our customers can know exactly what the cans contain, and this law will apply with equal force to all who sell in Indiana markets, I am sure our association and manufacturers will encourage it. Distance, high freight, a new country thinly populated, favors the North Dakota merchants under a similar Paint law. That its operation in Indiana would be for the benefit of either Indiana manufacturers, dealers or consumers we very much doubt. It is a most important matter and should be intelligently decided.

#### PRISON MADE BINDER TWINE.

We have been interested in watching developments of the Indiana penitentiary Binder Twine factory. We have had quite a number of letters from members calling attention to the result on trade:

1. Prison Twine demoralizes all Twine prices, because no legitimate manufacturer can compete.
2. It makes it impossible for any dealer to buy intelligently, because he cannot guess how much prison Twine the farmers of his neighborhood will send for.
3. The quality of the Twine is said to be inferior.
4. The State sells prison Twine to dealers, but fixes a price which really carries no profit.
5. It establishes a price based upon cost of raw material alone, and we are taxed to support the free labor of the convicts.
6. The prison by selling direct to consumers engages in direct competition with the tax paying merchant.

Nearly every paper in speaking of Twine refers to the Twine Trust. Our farmers think that this prison plant was started to fight the trust. In reality there has been no Twine Trust since 1893. You can secure a special quotation from at least 20 Twine manufacturers and many more jobbers.

I think that all will agree that employment of some kind is desirable for our convicts. This should be in making something that requires the greatest amount of labor with the smallest amount of invested capital. Something used for public improvement, like good roads, for instance, would seem preferable to making Binder Twine, with all its expensive machinery and skilled operators. We have prison Binder Twine, however, and any opposition now would seem like "locking the barn after the horse is stolen." We perhaps can, if we show good cause, secure changes in the selling terms. Some of our members have handled prison Twine. Their experience may prove interesting and beneficial.

#### THE BUSINESS MAN IN POLITICS.

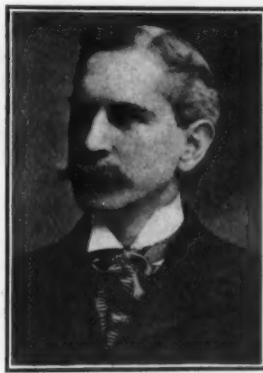
The danger of injurious legislation has led us to seek a closer acquaintance with those who represent us in our State and National bodies. I have attended several conventions, and am sorry to find so few Hardwaremen present. I do not blame you for declining to enter into the heat of political discussions during a campaign. It is not necessary to antagonize your customers by personal appeals to vote your ticket. But it is to your own advantage as retail merchants to send delegates to the conventions from your own ranks, selecting men of reputation and ability, who can learn the ropes, get acquainted with the leaders, and thereby exert an influence, when it comes to seeking or defeating future legislation.

You should have a voice in wording platforms, a vote in selecting candidates. These candidates seeking your favors are always willing to listen. If they are elected you can go to them and secure recognition that is not extended to the quiet "stay at home."

I would like to see more Hardwaremen in our Legislature, more merchants filling State official chairs. I believe such conditions would result in fewer scandals and more economical and honest government. It is not to our credit to stay at home when a convention is held, and then find fault with what is done. It is not good business to keep quiet or appear unconcerned when bills are being considered that would work an injury to our trade. It is always easier to defeat legislation than to get it repealed.

#### Retail Hardware Advertising.

A most interesting and entertaining address on the subject of advertising a retail Hardware business was delivered by O. B. James, Richland Center, Wis. Although extemporaneous in character his remarks were exceedingly witty and his points well made, while the examples he read of his own local advertisements directed against catalogue house competition were hugely enjoyed. Mr. James recommended that Hardware merchants should advertise persistently in their local papers, varying their space according to the matter in hand. Frequent changes of copy he declared to be imperative, and he urged a liberal use of "readers" in connection with display ads. He suggested the use of a full page at least twice a



W. A. SHIPLEY.



CHARLES E. HALL.

year, thus giving the merchant a prestige which would be of lasting value.

He brought out the importance of advertising one thing at a time, except in the case of special sales or during the holiday season. Even advertising a broad line like Stoves, it is better to refer to one particular Stove at a time instead of the general line. Priced advertisements were recommended as bringing best results, but at holiday time, if used at all, the prices must be given with tact and good judgment, since persons buying Christmas gifts do not as a rule want the recipient to know the cost.

Mr. James referred to the psychological effect of quoting odd cents in a price—\$6.86, \$7.98, &c.—declaring that such prices give an impression of close figuring which is highly desirable.

An original idea was the occasional publication of an advertisement in a foreign language, especially in communities where there is a considerable percentage of foreign population. Such ads. are calculated to attract

attention and make the foreigners, whose language is so recognized, feel well disposed toward the store.

A novel method of distributing circular letters, tried by Mr. James with noteworthy results, was to inclose them in used envelopes received in the regular course of business and saved up for the purpose. These envelopes, with the circular letters inclosed, were "lost," as Mr. James put it, in various parts of the town, left in farmers' wagons, buggies, baby carriages, &c., or dropped in door yards. The experiment afforded good reason for the belief that the inclosures were opened and read, even though in many cases they were returned to the store. In conclusion, Mr. James stated that he had observed a great change for the better in the advertising methods of retail Hardware merchants, and he believed that further improvement might be expected within the next few years.

#### Hardware Window Dressing.

An address on "Hardware Window Dressing," delivered by W. L. Winning, who has originated weekly window dressing service in Indianapolis, contained suggestions of value to many of the members and was received with much interest. Starting with the argument that a show window in a good location has a greater circulation than any local newspaper, Mr. Winning went on to say that Hardware merchants have been very slow to recognize the value of this form of advertising. Their tendency has been to change their displays but seldom and to make the common mistake of trying to show too many heterogeneous lines at once. The agitation of the subject by the trade papers, however, which have reproduced effective displays, and the efforts of manufacturers to stimulate by prize contests and the like the display of their own lines, are causing the trade to awaken to the importance of this subject, and a steady improvement is observed.

The show window is a salesman and should be regarded as such. Try an effective display of almost any article that has a slow sale and the results will be surprising. The test of a display, the same as that of a salesman, is the number of goods sold. Salesmen do not try to talk a dozen things at once, but emphasize one thing or another or several in turn, according to circumstances. It should be the same with a window. The same old display won't do. Frequent changes are necessary or people will pass your window without noticing its familiar features.

Good advertising and an eye for effective arrangement are equally valuable in all lines of business, but a man must know the Hardware business to get the best results from a Hardware store window. There is no better way to do than to train a bright employee for this work and afford him every opportunity to educate himself along up to date lines. The time which he gives to this subject and the efforts made by the merchant in assisting him will be well spent, especially if he is a man in whom confidence is placed and who may be expected to remain permanently in his position.

#### QUESTION BOX.

The conclusion of Mr. Winning's address leads easily to the opening of the Question Box, the first question being

##### 1. Is It Advisable to Mark Prices on Articles Displayed in a Store Window?

At the start there was a disposition to pass this question quickly with an affirmative answer, on the ground that the display of low prices would increase sales, the same as in a newspaper advertisement. As one merchant put it, "If the show window is a salesman it must talk." Before long, however, a lively discussion developed and some merchants declared themselves as positively opposed to putting prices on goods which might be carried in competitors' stores. Seeing the article and the price on it, they argued, the passer-by, even if he is a prospective purchaser, learns all he wants to without going in, and passes by to the competitor's, where he tries to beat the price he has seen.

In the same way the competitor is advised exactly what price he must make in order to secure the sale. The force of this argument was apparent, although it was admitted that competitors need not rely on windows to

learn each other's prices. The point was also well made that where competitors are members of the association and also have a local understanding, as is often the case, they would not be disposed to watch each other's doings too closely or cut under each other's prices.

##### 2. The Hardware Man in Politics.

An active discussion took place as to the great importance of retail merchants interesting themselves in politics with a view both to securing honest and efficient officials and also of securing a stronger influence with members of the State Legislature and Senate, upon whom the enactment of laws depends. The retail merchants will unquestionably have more influence with the legislators whom they help to elect, which will enable them effectively to advance legislation in their interest and similarly oppose unfavorable bills. The lien law now under discussion and the proposed garnishee law were instanced as questions in point, and the attitude of the association as a body on these live legislative topics was expressed in the report of the proper committee.

##### 3. How Can Manufacturers and Jobbers Best Assist Retailers to Sell Their Goods?

In discussing this question reference was made to the address of E. M. Bush, Evansville, at the Atlantic City convention last fall, with which our readers are more or less familiar. It was unanimously agreed that the practice of inclosing printed descriptions of goods with explanation of their merits and use, in packages, was a valuable and practical aid to retailers which could not be too strongly endorsed.

##### 4. What Is the Experience of the Trade in Selling Articles Advertised by the Manufacturers in General Periodicals?

A somewhat surprising sentiment was found to exist against manufacturers advertising direct to consumers and it was generally agreed that whereas nearly every merchant has inquiries referred to him by manufacturers sales rarely result.

One member expressed the belief that consumers receive from such advertisements the idea that manufacturers will sell them direct and subsequently resent being referred to the home dealer, thus becoming sore against the article and the merchant alike, feeling that the latter has in some way prevented them from getting first hand service. The efforts of several Hardware manufacturers along this line were specifically referred to and it was unanimously agreed that if such advertising is attempted it must be done in an unusually intelligent and tactful way or it will do the retailer more harm than good.

There was a decided tendency to ridicule the value of the inquiries which the manufacturers receive and turn over to the trade, several making the statement that a large majority emanate from children. The conclusion of the discussion seemed to be that while direct advertising educates the consumer as to goods, it also educates him to buy direct if possible, which is a tendency fraught with no little danger to the retailer. It was wisely observed, however, that if the Hardwareman would get closer to his customer, both learning his requirements and teaching him what the Hardwareman could supply, the dangers referred to would be largely avoided.

##### 5. How Can We Get Our Business Nearer to a Cash Basis?

The discussion of this question developed little that is new to those who have followed convention reports for the last two years. An unexpected turn of the subject, however, brought out an amazing laxity in collections, few claiming to send out statements every 30 days, many explaining that they sent theirs every 90 days, and even more admitting to six months and longer. It was agreed, however, that merchants are more careful and businesslike regarding credits and collections than they were a few years ago, although they are still far too careless for the present times and conditions.

The problem was said to be a much more troublesome one for the country than the city merchant, since the former often has to give his personal attention to such matters and is up against the detail work himself.

One member asserted that customers will have more respect for a merchant who is businesslike about his collections, and otherwise must be shrewd enough to know that a very large profit is charged to make up for the time allowed on payment.

Another member reported an interesting method of settlement which had proved acceptable to his trade—namely, that of requiring adjustment of outstanding accounts by cash or note every three months.



#### 6. Quantity Prices a Disturbing Factor.

An interesting position was taken by some that inducements in the way of quantity prices should not be offered to the retail trade, who ought to pay more than jobbers for their goods under any and all circumstances. A quantity price, said one, is poison to the retailer, as it tends to induce him to overbuy and in the end he will have to unload at cut prices, thus demoralizing the local trade.

#### 7. Handling Implements, Paints, Vehicles, &c.

The advisability of Hardware merchants handling Implements, Stoves, Paints, Vehicles and Harness was also discussed. An undoubted tendency was observed in favor of broadening the business and increasing the number of lines handled.

#### 8. Efficient Help in the Store.

The great need of efficient help was referred to, and methods of retaining the services and interest of valuable clerks were discussed. W. D. Creed, New Albany, reported that he had just apportioned to two faithful employees a percentage of his profits for the year, and he believed that he would find the investment a good one. His suggestion was favorably received.

#### 9. The Catalogue House Problem and Relations of Jobbers and Retailers.

Considerable growth and progress were shown in the discussion of the catalogue house problem, which was marked by a sane, intelligent and broad minded spirit. The same may be said of the discussion referring to the relations of jobbers and retailers. It was recognized that all are disposed to think and act from the selfish point of view, and merchants must solve many problems of competition and expansion on their own individual merits and for themselves alone.

#### 10. Running Expenses Steadily Increasing.

In answer to a query as to how many members found the proportion of their running expenses steadily increasing in spite of all they could do, nearly every one replied in the affirmative.

Several other intimate questions bearing on the conduct of a Hardware business were frankly discussed, and the meeting closed with a stirring address by H. E. Grube, Plymouth, on the subject, "What Should Be the Attitude of Retail Merchants Toward the Trusts and Trust-Made Goods?"

#### Prison Made Binder Twine.

There was considerable discussion of the subject of prison made Binder Twine, which has become a disturbing element in the market during the past year, being sold direct to the consumer. It was reported that the warden of the State prison was endeavoring to put through the Legislature an appropriation for larger manufacturing facilities, by which the prison output of Twine could be heavily increased, urging that it would make the prison practically self-supporting. Confronted with the probability that the warden's recommendation would prevail, the members took up the matter with a view to saving their Twine business by arranging that the output of the prison should be marketed through them, and should not be sold to the consumer except at a price which would leave merchants a fair margin of profit. The sentiment of the convention, as expressed by one member, was that Hardwaremen were not opposed to prison made goods as such, but felt that they should be distributed through the "proper" channels.

#### Report of Committee on Legislation.

The report of the Committee on Legislation recommended that the convention express its sentiment against the proposed bill to deprive merchants of the right to file a mechanics' lien and secure payment for material used in the construction and repair of buildings, and that members write or interview their Representatives and Senators on this subject. Opposition was also expressed to the proposed Paint law, explained by President Frame in his opening address, on the ground that it would discriminate against home merchants, and in favor of non-resident sellers. It was further recommended that the president be instructed to organize a Standing Legislative Committee consisting of five members, with the president and secretary as members *ex officio*.

#### Resolutions.

Among the resolutions adopted, as reported by the committee, of which James L. Fulton was chairman, were the following:

*Whereas*, There is persistent agitation and effort in favor of establishing a parcels post system in the United States, and whereas, we recognize that social conditions, length of haul, scattered population and lack of monopoly in transportation renders such a system too cumbersome, too expensive and absolutely certain to entail an enormous loss upon the Government; be it

*Resolved*, That we reaffirm our continued and unalterable and absolute opposition to any legislation seeking to establish a parcels carrying system in connection with the Post Office Department of the United States at this time or in this generation.

*Whereas*, First-class mail matter furnishes approximately 80 per cent. of the revenue of the Post Office Department, and produces more than \$100,000,000 of profit per year, while it supplies less than 14 per cent. of the tonnage;

*Resolved*, That a reduction from 2 cents to 1 cent for the stamp required on the ordinary letter would be advantageous to business interests and would be equitable to all.

*Whereas*, The Hardware dealers mutual fire insurance companies have established their soundness, their usefulness and their economy beyond all question of doubt; be it

*Resolved*, That we reaffirm our loyalty and support and urge upon every member of this association and every Hardware dealer to take further advantage of the material saving effected by patronizing our mutual insurance companies, and by thus doing increase their stability and usefulness.

*Whereas*, The exhibit feature of our annual convention has this year proved a great success in all regards and especially in its social and financial aspects; be it

*Resolved*, That we reaffirm our indorsement of the system, looking to further improvement in the organization of this feature, that every necessary facility may be afforded our friends the exhibitors; and be it further

*Resolved*, That we as a body hereby extend our thanks to the exhibitors for their loyal and ready co-operation as demonstrated in this convention.

*Whereas*, Our State Legislature is now in session, and we deem it our duty to express our interest and our demand for just and equitable laws, as related to the commercial interests of our State; be it

*Resolved*, That we as a body and as individuals urge upon the members of the Legislature the following:

1. That we oppose any weakening of the present mechanics' lien laws.

2. That we favor a change in the garnishee laws, to give the merchants more protection against dishonest debtors, like unto the laws now in effect in Ohio.

3. That we favor the adoption of a Paint law, that shall protect the people of our State from the imposition of falsely represented Paints, both from within and without the State.

#### CONVENTION NOTES.

The Indiana Association has always been wise in the choice of its officials. This year it was especially fortunate in its president, C. B. Frame, who though elected vice-president a year ago was raised to the chair by the resignation of former President Shidler. Mr. Frame proved himself a masterly and tactful presiding officer and the members showed their appreciation and confidence by re-electing him for the ensuing year. At the opening session President Frame was honored by the presentation of an ivory and silver mounted gavel suitably engraved.

An able report of the last annual convention of the National Retail Hardware Association was read by Fred W. Bartholomew, Michigan City. Mr. Bartholomew is a clear thinker and intelligent worker for Hardware interests, and was the choice of the convention for the office of second vice-president.

The Bostwick-Braun Company, Toledo, Ohio, was represented by M. H. Nusbaum and four Indiana salesmen, G. W. Corlett, J. H. Herdman, M. E. Babb and F. H. Wait, who occupied a suite at the Denison and furnished visiting customers with cigars and other entertainment.

Wednesday evening an enjoyable smoker was held in the convention hall at the Denison. Although ample entertainment had been provided the room was not large enough to accommodate the crowd who desired to attend. The music of the Indiana University Glee Club was much enjoyed, but the feature of the evening was the Hardware Saengerbund, conducted by E. B. Schenk, Mt. Vernon, and participated in by all. The genius and wit of Mr. Schenk was thus demonstrated, as well as

the fact that the association is replete with musical talent.

In addition to its display in the Hardware show, Critten & Sexton Company, Chicago, effectively called attention to its line by attempting to heat all outdoors. At least the company had one of its Imperial Universal triple flue hard coal base burners going on the edge of the sidewalk in front of the exhibition hall. The stove burned freely and radiated a tremendous heat, although it was set up in the open street with only a length of ordinary stove pipe for a chimney.

The Hardware jobbing house of Layman & Carey Company had an attractive exhibit at the Hardware Show, and a number of its representatives in attendance to meet visiting customers. The company's spacious establishment is situated not far from the hall and the hotel and many merchants took advantage of the opportunity to inspect it, being received with every courtesy. Mr. Layman, senior, who is recognized as one of the pioneer Hardwaremen of the Middle West, is a representative type of the successful business man and gracious gentleman.

E. C. Atkins & Co., who are, perhaps, the leading manufacturers of Indianapolis, are always a prominent factor in the Indiana convention. This year their exhibit at the hall was one of especial size and interest. Besides an elaborate display of the Atkins Saws of every variety there were two handsome and realistic set scenes with life size wax figures and background painted on canvas. Most of the members of the association had visited the great Atkins plant during previous conventions, but for those who had not there was safe conduct through the works, with ample opportunity to observe every step in the process of manufacturing all kinds of Saws.

The Van Camp Hardware & Iron Company, Indianapolis, had one of the best equipped booths at the Hardware show, including desk accommodations and free stenographic service for all customers. There were attractive displays of several of the company's special lines and associated exhibits of several manufacturers for whom the company is local or State agent. Carriages were constantly in readiness to convey visitors to the Van Camp establishment, which is admittedly one of the largest and best equipped of its kind in the country. In the absence of Cortland Van Camp, president, S. G. Van Camp, vice-president and general manager, received guests, aided by the assistant manager, G. S. Winders, and the capable sales staff of the company.

At the closing session of the convention a notable, through impromptu address was made by Sharon E. Jones, Richmond, who urged the members of the association to adopt a policy of making larger profits in their business, asserting that although the volume of business during the past year has been record breaking profits have been relatively small, as merchants have not taken advantage of advances in the market. Even jobbers, he declared, are outspokenly dissatisfied with the results of their year's business. Returns are not commensurate with the labor and effort expended and the capital invested. Hardwaremen, said Mr. Jones, must change their front and resolve to sell goods at a profit, or not at all, for if they cannot make money in times like these they had better quit and go into some other business. Mr. Jones' remarks were warmly indorsed by J. L. Fulton, Portland, and others.

#### EXHIBITS AND EXHIBITORS.

A. B. POLISH COMPANY, Chicago: Represented by A. P. Christena.  
ACME WASHING MACHINE COMPANY, Columbus, Ohio: Represented by C. L. Brandon.  
ACME WHITE LEAD & COLOR WORKS, Detroit, Mich.: Represented by T. F. Otlej, J. L. Forch, J. C. Conroy and A. H. Millen.  
H. ADLER COMPANY, Carnegie, Pa.: Acme Gas Ranges and Steel Step Ladders. Represented by E. F. Coulter and H. W. Beegle.  
ADRIAN WIRE FENCE COMPANY, Adrian, Mich.: Represented by E. S. Ferguson and G. W. McPike.  
AMERICAN REGISTER COMPANY, Goshen, Ind.: Represented by G. A. Riley.  
AMERICAN STEEL & WIRE COMPANY, Chicago: Represented by I. L. Sawin, J. A. Boyd, J. M. Thomas and J. W. Meaker, Jr.  
AMERICAN WRINGER COMPANY, New York: Represented by N. B. Hutton. Souvenir, memorandum book.  
E. C. ATKINS & Co., Indianapolis: Saws. Represented by Frank Wells, C. J. Hendryx, H. T. Benham and E. W. Springer.  
ATLANTIC STAMPING COMPANY, Rochester, N. Y.: Represented by C. G. Hobart and W. W. Lyman.  
ATLAS ENGINE WORKS, Indianapolis: Represented by J. F. Campbell and J. C. Westervelt.

AUTOMATIC DAMPER COMPANY, Milwaukee, Wis.: Star Ball Bearing Pulleys for Furnaces and other purposes and Automatic Damper Regulator.  
BANTA-BENDER MFG. COMPANY, Ligonier, Ind.: Ice King Refrigerator and Banta Incubator. Represented by L. A. Banta, M. C. Pollock and C. G. McLean.  
BICKFORD & HUFFMAN COMPANY DIVISION, AMERICAN SEEDING MACHINE COMPANY, Macedon, N. Y.: Farmers' Favorite Grain Drill. Represented by J. G. Waterman.  
BROWN-MANLY PLOW COMPANY, Malta, Ohio: Represented by I. B. Pickett, E. M. Carter and M. M. Pickett.  
BUFFALO OIL, PAINT & VARNISH COMPANY, Buffalo, N. Y.: Represented by K. Ferguson and M. E. Sherwood. Souvenirs, stick pins and hat pins.  
A. BURDIAL COMPANY, Indianapolis: Paints, Brushes and Sundries. Represented by G. G. Allen, W. W. Stemm, T. H. Carter, M. Moore, H. F. Reed and A. O. Stevens. Souvenir, watch fob.  
CANADIAN CORDAGE & MFG. COMPANY, Peterborough, Ont.: Represented by G. N. Foresman.  
CARBORUNDUM COMPANY, Niagara Falls, N. Y.: Represented by H. L. Davis and G. E. Dresser. Souvenirs, Sharpening Stone in leather case and leather match case.  
CENTRAL SPECIALTY MFG. COMPANY, Chicago: Bathroom Fixtures. Represented by C. J. McGee.  
CHADBORN & COLDWELL MFG. COMPANY, Newburgh, N. Y.: Lawn Mowers. Represented by H. H. Wallace.  
CLEVELAND CO-OPERATIVE STOVE COMPANY, Cleveland: Represented by A. P. Chilson. Souvenir, writing stand.  
COLE CARRIAGE COMPANY, Indianapolis: Represented by S. S. Helms and J. F. Morrison.  
H. T. CONDE IMPLEMENT COMPANY, Indianapolis: Represented by F. H. Martin and A. P. Davis.  
COLUMBIAN HARDWARE COMPANY, Cleveland, Ohio: Represented by B. Ketchum and F. W. Wood. Souvenirs, ink well and pickininy.  
CRAWFORDSVILLE TANK COMPANY, Crawfordsville, Ind.: Troughs and Tanks. Represented by J. O. Clarke.  
CRIBBEN & SEXTON COMPANY, Chicago: Universal Stoves and Ranges. Represented by J. C. Frame and R. H. Wheeler.  
CULTER & PROCTOR STOVE COMPANY, Peoria, Ill.: Represented by H. G. Culter and M. N. Hagaman. Souvenirs, stick pins and combination pencil and pen.  
DE LAVAL SEPARATOR COMPANY, Poughkeepsie, N. Y.: Represented by T. E. McClean and J. H. Hilfker.  
FERDINAND DIECKMANN, Cincinnati, Ohio: Conductor Elbows. Represented by E. H. Hoffeld. Souvenir, bag tag.  
DODD & STREUTHERS, Des Moines, Iowa: Lightning Rods. Represented by Chas. Dausman, W. J. Whitehead and J. W. Mitchell.  
DURHAM MFG. COMPANY, Muncie, Ind.: Auto-Express Hand Car. Represented by J. A. Durham.  
EASY WASHING MACHINE COMPANY, St. Mary's, Ohio: Represented by J. S. McDaniel and J. T. Koenig.  
ECLIPSE STOVE COMPANY, Mansfield, Ohio: Represented by V. S. Hostetter. Souvenir, memorandum book.  
EDWARDS MFG. COMPANY, Honey Creek, Ind.: Advance and Only Way Washers. Represented by W. H. Howe and J. S. Edwards.  
ELLWOOD LAWN MOWER MFG. COMPANY, Ellwood, Ind.: Represented by E. C. Heck.  
EMPIRE CREAM SEPARATOR COMPANY, Bloomfield, N. J.: Represented by I. D. Stevens, C. P. Roudebush and W. P. Shepherd.  
ESTATE OF P. D. BECKWITH, Dowagiac, Mich.: Round Oak Stoves and Ranges. Represented by D. G. Hughes and W. T. Leckie. Souvenir, beer stein.  
ESTATE STOVE COMPANY, successor to F. & L. Kahn & Bros., Hamilton, Ind.: Represented by C. C. Draper, D. C. Harr, F. M. Draper and F. T. Meharry. Souvenir, nickel plated ink well.  
EVANSVILLE PUMP & MFG. COMPANY, Evansville, Ind.: Represented by P. J. Euler.  
EXER-KETCH NOVELTY COMPANY, Indianapolis: Exer-Ketch Children's Hand Car, Fireless Cooker, Electric Toy Engine and Aerial Swing. Represented by G. E. Meyer. Souvenir, Game.  
FAIRBANKS, MORSE & Co., Indianapolis: Gasoline Engine and Scales. Represented by L. A. Snider and C. C. Rice.  
FLINT WAGON WORKS, Flint, Mich.: Represented by C. H. Thrush and A. H. Cladin.  
F. & N. LAWN MOWER COMPANY, Richmond, Ind.: Represented by G. M. Piper.  
FOREST CITY PAINT & VARNISH COMPANY, Cleveland: Represented by C. A. Young and J. Huxley. Souvenirs, pin trays and match safes.  
FRAZER STOVE COMPANY, Indianapolis: Represented by L. M. Frazer, K. P. Knight and John Keefe.  
FULLER-WARREN COMPANY, Milwaukee, Wis.: Stewart Stoves and Ranges. Represented by C. D. King, D. J. Brennan and J. L. Potter. Souvenir, pocketbook.  
JOSEPH GARDNER, Indianapolis: Standard Gasoline Soldering Furnace. Represented by L. B. Sherwood.  
GEM CITY STOVE COMPANY, Dayton, Ohio: Represented by W. A. Rowand and F. Flax. Souvenir, apples.  
GERMER STOVE COMPANY, Erie, Pa.: Represented by F. A. Emerson. Souvenir, watch fob.  
HAWKEYE INCUBATOR COMPANY, Newton, Iowa: One Minute Washers. Represented by B. V. Walter.  
H. T. HEARSEY VEHICLE COMPANY, Indianapolis: Machine for



- applying rubber vehicle tires and Hearsay Bicycle Tires. Represented by F. I. Willis and E. A. Grover.
- HEATH & MILLIGAN MFG. COMPANY, Chicago: Exhibit of advertising matter for Heath & Milligan Paints and Sunshine Finishes. Represented by E. F. Zander and B. H. Pinkerton. Souvenirs, cuff buttons and dolls' furniture.
- J. M. HERRIN COMPANY, Wausaw, Ind.: Universal Adjustable Cast Iron Stack Base for Chimney Caps and Stacks.
- HIBBARD, SPENCER, BARTLETT & Co., Chicago, Ill.: Represented by A. P. Reiter, F. H. Warren, Jr., Frank Close, T. P. Van Horn, H. A. Munson, H. S. Dell, G. H. Wehmeyer, W. H. Jackson and James De Long. Souvenirs, O. V. B. watch fob and ivory rule.
- HOME STOVE COMPANY, Indianapolis: Represented by R. A. Henry and R. Hesser. Souvenir, ash tray.
- HORTON MFG. COMPANY, Fort Wayne, Ind.: Horton Galvanized Rotary Washer.
- IMPERIAL SELF-HEATING IRON COMPANY, Indianapolis: Represented by H. Woollen.
- INDEPENDENT WHIP COMPANY, Westfield, Mass.: Represented by F. Swalm.
- INDIANA AUTOMOBILE COMPANY, Indianapolis: Represented by W. R. Wheeler.
- INDIANAPOLIS PAINT & COLOR COMPANY, Indianapolis: Represented by S. L. Bassett, J. Catherwood and C. L. Davis.
- INDIANAPOLIS STOVE COMPANY, Indianapolis: Represented by A. E. Wells, J. J. Landis, H. Bohannon and W. C. Griffin.
- E. G. ISCH & Co., Peoria, Ill.: Peoria Double Fan End Gate Seeder. Represented by R. Isch.
- JOHNSTON HARVESTER COMPANY, Batavia, N. Y.: Represented by B. W. Barge and W. D. Long.
- JOHNSON-WOODBRIDGE COMPANY, Indianapolis: Lucas Paints and Standard Varnish. Represented by L. S. Woodbridge, S. C. Thalls, W. J. Selvaige and J. E. Hatt. Souvenir, oxidized match safe.
- KRAMER BROS. FOUNDRY COMPANY, Dayton, Ohio: Cement Tools, Stove Carriers and Metal Flower Vases. Represented by E. V. Gilbert and A. A. Hellstern.
- LAMB WIRE FENCE COMPANY, Adrian, Mich.: Represented by H. Swift and J. C. Thompson.
- LAWRENCE BROS., Sterling, Ill.: Barn Door Hangers, Hinges and Butts. Represented by W. J. Gilbert.
- LAYMAN-CAREY COMPANY, Indianapolis: Builders' Hardware and Edge Tools. Represented by J. T. Layman, Jr., T. D. Layman, Chas. Pearson, Wm. Bailey, C. P. Aten, J. W. Minehart, C. B. Carter, D. B. Bolinger and A. A. Gottomiller. Souvenir, Wire Cutter.
- LEE CHAIR COMPANY, Oneida, N. Y.: Reliance Mop Wringer. Represented by A. C. Hess.
- LEFFLER, THIELE & Co., 47 Murray street, New York: Seamless Pyrolite Enamelware. Represented by L. A. Madigan.
- LENNOX FURNACE COMPANY, Marshalltown, Iowa: Represented by C. N. Pratt, L. B. Beech and S. P. Britt.
- A. J. LINDEMAN & HOVERSON COMPANY, Milwaukee, Wis.: Stoves and Ranges. Represented by C. Voss, Wm. Phillips and N. Christophersen.
- LOVELL MFG. COMPANY, Erie, Pa.: Clothes Wringers. Represented by C. B. Wingfield.
- LOWE BROS. COMPANY, Dayton, Ohio: Paint and Varnish. Represented by H. L. Wilson, R. G. Allen and W. O. Zehring. Souvenirs, watch fobs, pins and buttons.
- MAJESTIC MFG. COMPANY, St. Louis: Malleable and Charcoal Iron Ranges. Represented by J. H. Hedges. Souvenir, stamp book.
- MALLEABLE IRON RANGE COMPANY, Beaver Dam, Wis.: Represented by F. W. Rogers and A. B. Cleveland. Souvenirs, ash trays and buttons.
- MARTIN & MARTIN, Chicago: E-Z Polishes. Represented by T. G. Beard.
- MAY & FIEBEGGER, Akron, Ohio: Akron Air Blast Furnaces, Athanor Furnaces and Furnace Fittings. Represented by Frank Fiebeger and F. B. Scott.
- F. MEYER & BRO. COMPANY, Peoria, Ill.: Handy Furnace Pipe. Represented by C. Uhlig.
- MILWIS MFG. COMPANY, Milwaukee, Wis.: Stamped and Enamelware and House Furnishing Goods. Represented by C. J. McGee.
- NATIONAL MFG. COMPANY, Sterling, Ill.: Builders' Hardware. Represented by A. B. Crane.
- NATIONAL ROOFING COMPANY, Tonawanda, N. Y.: Represented by W. H. Chatfield and S. F. Van Wormer.
- NATIONAL STOVE COMPANY DIVISION, Lorain, Ohio: Represented by T. J. Moran and J. A. Alexander. Souvenirs, match trays and ladies' shopping lists.
- NEX MFG. COMPANY, Canton, Ohio: Hay Carriers, Barn Door Hangers and Improved Cross Draft Sling Carrier. Represented by A. M. True, I. N. Kinney and J. M. Leidigh. Souvenirs, match boxes and ash trays.
- NORTHERN OHIO BLANKET MILLS, Cleveland, Ohio: Represented by C. D. Remington.
- NORVELL-SHAPLEIGH HARDWARE COMPANY, St. Louis: Represented by F. E. Allyn, J. C. Reed, J. B. Griffin, R. C. Vaught, F. J. Todd, H. E. Sabourin and A. E. McKee.
- OHIO VARNISH COMPANY, Cleveland: Chi-Namel, Graining Tools and Graining Compound. Represented by J. E. Tyler and H. H. Adams. Souvenir, pencil holder.
- OMAHA LIGHTNING ROD & ELECTRIC COMPANY, Omaha, Neb.: Represented by T. B. Adams.
- ONEIDA COMMUNITY, Oneida, N. Y.: Animal Traps and Chains. Represented by F. H. Primo.
- PARRY MFG. COMPANY, Indianapolis: Buggies. Represented by E. S. Webb and A. B. Gough.
- PETALUMA INCUBATOR COMPANY, Petaluma, Cal.: Represented by W. A. Ashbach, A. D. Smith and A. M. Williams.
- PITTSBURGH ALUMINUM COMPANY, Pittsburgh: Cooking Utensils. Represented by L. A. Madigan.
- PITTSBURGH STEEL COMPANY, Pittsburgh: Fence. Represented by E. S. Jordan and C. D. James. Souvenir, puzzle.
- J. E. PORTER COMPANY, Ottawa, Ill.: Hay Tools, &c. Represented by C. B. Howland.
- PRITCHARD-STRONG COMPANY, Rochester, N. Y.: Prisco Lanterns. Represented by J. P. Cumming. Souvenirs, buttons, postal cards and paper weights.
- T. C. PROUTY COMPANY, Albion, Mich.: Parlor Door Hangers, Fire Door Hangers, &c. Represented by C. E. Bates and J. R. Pitts. Souvenir, card counter.
- RATHBONE, SARD & Co., Aurora, Ill.: Stoves and Ranges. Represented by A. E. Kent and G. H. Turner.
- RINGEN STOVE COMPANY, St. Louis: Represented by W. S. Ley and J. R. Brower.
- OSCAR C. RIXSON COMPANY, Chicago: Door Checks, Window Locks, &c. Represented by H. A. Stoddard and M. H. Force.
- ROCHESTER SAFETY LOCK COMPANY, Rochester, Ind.: Represented by H. F. Crim and W. C. Loy.
- ROSS CARRIAGE MFG. COMPANY, Union City, Ind.: Represented by W. H. Winstead.
- ST. LOUIS CORDAGE COMPANY, St. Louis: Represented by Will Cumback and J. U. Powell.
- SARGENT PAINT & COLOR COMPANY, Indianapolis: Represented by E. J. Mahony, H. Allsop and J. W. Shawhan. Souvenirs, mirrors and memorandum books.
- SCHNEIDER & TRENKAMP COMPANY DIVISION, Cleveland: Gas Ranges, Steel Ranges and Vapor Stoves. Represented by J. R. Cunningham.
- E. G. SCHUTTE & Co., Cincinnati, Ohio: Ice Tongs, Ice Picks, Shavers, Cold Chisels, Pinch Bars, &c. Represented by H. M. Harrison.
- SCIOTO BUGGY COMPANY, Columbus, Ohio: Represented by A. E. Crawford.
- SEIDEL BUGGY COMPANY, Richmond, Ind.: Represented by A. C. Hill.
- SHARPLES SEPARATOR COMPANY, West Chester, Pa.: Represented by W. E. Strowhuver and J. D. Woodruff.
- SHELBY SPRING HINGE COMPANY, Shelby, Ohio: Represented by R. E. Murray and L. D. Malone. Souvenir, badge.
- SIMMONS HARDWARE COMPANY, St. Louis: Represented by W. H. Standart, C. H. Castlen, E. H. Neumeyer, C. P. Emmelman, R. O. Law, A. W. Spain, B. M. Perkins, J. Meyers and F. J. Wachter.
- SIMONDS MFG. COMPANY, Chicago: Represented by W. J. Feddery, R. H. Newman and A. T. Simonds. Souvenir, miniature Wood Plane.
- SMITH MFG. COMPANY, Chicago: Cream Separators: Represented by J. D. Hobson and D. H. Smith.
- SOUTHERN SEED COMPANY, Louisville, Ky.: Seed Fertilizer and Binder Twine. Represented by J. H. Spencer. Souvenirs, stick pins and memorandum books.
- SPRING STEEL FENCE & WIRE COMPANY, Anderson, Ind.: Represented by W. T. Ashby and M. Reed.
- STANDARD METAL COMPANY, Indianapolis: Represented by W. M. Husbands and J. F. Jewar. Souvenir, card case.
- STAYER CARRIAGE COMPANY, Chicago: Represented by E. B. Gray.
- STERLING MFG. COMPANY, Sterling, Ill.: Plow Cut Disk Harrow with tongue truck. Represented by C. G. Leachman.
- SUPERIOR DRILL COMPANY, Springfield, Ohio: Represented by W. A. Scott, O. E. Clevenger and A. B. Barnard.
- TANNER & Co., Indianapolis: Tin Plate and Sheet Metals. Represented by J. C. Henley and N. C. Appar.
- UNITED STATES REGISTER COMPANY, Battle Creek, Mich.: Represented by L. J. Glover.
- VAN CAMP HARDWARE & IRON COMPANY, Indianapolis: Represented by M. O. Lewis, W. R. Walden and N. M. Curry.
- VERMONT FARM MACHINE COMPANY, Bellows Falls, Vt.: Represented by H. E. Gish.
- WAHLE FOUNDRY & MACHINE WORKS, Davenport, Iowa: Washers. Represented by H. H. Wahle. Souvenir, snowball girl.
- WAUPAK HOLLOW WARE COMPANY, Wapakoneta, Ohio: Represented by J. A. Madigan.
- WEBSTER BROS., 148 Chambers street, New York: Pocket Knives, Razors, Shears and Manicure Goods. Represented by H. W. Beegle.
- WESCOTT CARRIAGE COMPANY, Richmond, Ind.: Represented by A. H. Snider.
- WHITE LILY WASHER COMPANY, Davenport, Iowa: Represented by A. F. Victor and L. G. Martin. Souvenir, miniature Washing Machine.
- WHITE MOP WRINGER COMPANY, Fultonville, N. Y.: Represented by F. S. Porter.
- WHITESIDE WHEEL COMPANY, Indianapolis: Buggy Wheels. Represented by J. F. Lugenbell.
- WHITMAN AGRICULTURAL COMPANY, St. Louis: Hay Presses. Represented by W. Peek.
- WINCHESTER REPEATING ARMS COMPANY, New Haven: Represented by J. E. French and H. W. Van Nest.
- YALE & TOWNE MFG. COMPANY, New York: Builders' Hardware, Cabinet Locks, Padlocks and Door Checks. Represented by E. C. Waldvogel and F. A. Maycumber. Souvenir, paper cutter.

## Iowa Retail Hardware Association.

**B**RIGHT sunshine, having in it a touch of almost springtime warmth and vigor and lacking only bursting buds and song of birds to complete the illusion of early May time, greeted the opening of the ninth annual convention of the Iowa Retail Hardware Association at Des Moines on February 19, 20, 21 and 22. To this favoring influence may be attributed, in part at least, the unusually good attendance at the first day's session, which, however, proved but a forerunner of the crowds that later swelled the number beyond all previous record. More than 450 members were present at this convention. Never classed among the laggards in any of the forward movements relating to social, political or industrial affairs, Iowa was naturally expected to make a good showing in new membership accessions, and in ever widening extension of association work and influence. But it is doubtful



H. S. VINCENT.

if the most sanguine of those either directly or indirectly interested had hoped for the increase of 41 per cent. in the membership roll which, by the secretary's report, was shown to have been made. Such results, it is needless to say, are never the product of anything but united and well directed effort, and give eloquent testimony of good official management and co-operative support.

The business meetings of the convention were held in the auditorium of the Christian Church, Ninth and Pleasant streets, while the exhibits were displayed in the rooms of Shriner's Temple, on the corner diagonally opposite. The remarkably large number of members in daily attendance at the regular sessions was easily the feature of the convention. With a seating capacity of over 450 the church auditorium was on Wednesday and Thursday afternoons filled to overflowing, and the unusual spectacle of standing room only was presented. Much favorable comment was heard regarding the number and tasteful arrangement of exhibits shown in Shriner's Temple. It was by far the largest and best display of the kind ever shown in connection with the annual convention. The two local wholesale houses, Luthe Hardware Company, and the Brown-Hurley Hardware Company, kept open house at their respective places of business, and during the convention large numbers of association members and visiting guests were cordially greeted and received at both places. By a wise arrangement of the programme it was provided that the exhibition building should remain closed during the session periods in the afternoons, thus enabling members and others to give their undivided attention to one interest at a time. The results of this plan were highly satisfactory, both to the association and the exhibitors.

### Convention's Opening.

After calling the meeting to order on Tuesday, President H. S. Vincent introduced Lucius Wilson, secretary of the Greater Des Moines Committee, who, speaking in behalf of that organization and in glowing terms of the Greater Des Moines it hopes to build, extended to the Iowa Retail Hardware Association a sincere and hearty welcome to the city.

In a few well chosen words President Vincent made due acknowledgment of the courtesy shown the association, and expressed the wish that the hopes of the Greater Des Moines Club might be realized, and that a new Coliseum Building, suitable for the entertainment of conventions, might be the first fruit of their labors.

### Committees.

The real work of the meeting was then begun by the appointment of committees to act during the convention, which were named by the president as follows:

RESOLUTIONS: S. R. Miles, E. C. Moore, Mr. Moulton.  
NOMINATIONS: P. C. DeVol, J. J. Sobolik, W. H. Millard.

AUDITING: L. A. Gnam, Charles Griebbling, L. R. Bailey.  
PRESS: E. C. Barbour, L. Lindenburg, A. R. Sale.

### The Business Man in Politics.

L. C. Abbott, Marshalltown, Iowa, read a paper full of pertinent thought and practical advice on the "Business Man in Politics." Mr. Abbott, following precept with example, was able to speak from personal experience, having ably served for a number of years on the aldermanic board of his home city, beside having held other positions of public trust.

### Stove Display.

The paper on "Stove Display," read by F. R. Currie, Mason City, proved to be one of unusual interest and incited prolonged discussion, in which a large number of the members took part. Extracts covering the principal features of this paper are given, as follows:

Realizing that the representation in this convention is from all sized stores and from all sized towns, I will endeavor to treat the subject of Stove Display in as comprehensive a manner as possible.

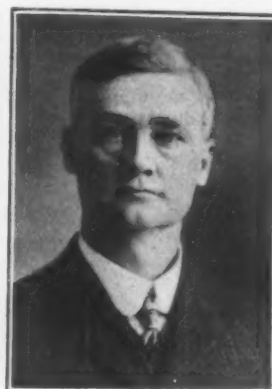
### FUNDAMENTALS.

If there are any fundamental principles governing this subject they may be briefly summarized thus: Stoves should be well blackened, kept free from dust and dirt, as well as from miscellaneous Hardware merchandise, and the nickel put in place and polished well. Stoves should be arranged in classified groups, Oak Stoves, Base Burners, Ranges, and so on, all side by side throughout the line. I believe these are the fundamental rules for the displaying of Stoves, but we may add one other, and that is, that the Stoves should be shown in as good light as possible.

We will begin with the conditions that confront the majority of Hardware dealers in the State of Iowa,



A. R. SALE.



S. R. MILES.

namely, limited amount of help in the sales department and the fact that Stoves are generally displayed on the same floor with the general line of Hardware. Under these conditions you can begin with the fundamental principles laid down. My experience is that

### THE BEST WAY OF LINING UP THE STOVES

is to arrange them in a double row, back to back, through the center of the store. This would apply of course particularly to stores of ordinary width in which there are no counters. You will then have aisles of good width on each side of the store. Use platforms not less than 9 in. in height and paint them a bright red; keep them well dusted and swept, the same as the floor and the shelving; and rest assured that the display will be detracted from if you use these platforms for Stove Castings and miscellaneous Hardware. In lining up your Stoves be sure to keep the classes in groups.



## THIS AFFORDS COMPARISON

as to size and makes the best impression; you will find it easier to lead up a customer from a small Stove which carries a low price to a larger Stove of higher price.

It is a good idea, as an aid to salesmanship, to have sectional pieces of Firebacks, Steel Ovens and other parts of the Stove to show your customer. I do not at all favor the system adopted by some of erecting platforms under the shelving at the side of the room. While this increases the floor space for the display of Stoves it does not have the same clear-cut effect upon the purchaser, as do Stoves shown in the open, and arranged in the right manner. Of course where stores use counters running the entire length of the floor a different arrangement will be necessary.

## IT ALSO PAYS TO CHANGE THE LOCATION OF STOVES,

or, rather, exchange location. Put your Ranges where the Cook Stoves are, and your Cook Stoves where the Heaters are. You will be surprised at the number of the people who will remark when they call at your store that you have been getting in new Stoves, when, perhaps, these very Stoves have been in another position on your floor for weeks.

## THE IDEAL WAY.

I come now to the consideration of what I believe to be the "ideal way" of displaying Stoves—namely, that of a separate Stove room or department. This will only apply to stores having two or more salesmen always available. In our own store it happens that the Stove room is in the basement, the front portion of which is used exclusively for a Stove display and salesroom.

## WE CHOSE THE FRONT PART OF THE BASEMENT

for several reasons. In the first place we had it; then it had a fair amount of light from the front; but most of all because the stairs to the basement were short and went down. It is a trait of human nature that people will go down a short pair of stairs more willingly than they will go up a long pair. Over the cement floor in this room we spread three or four coats of good floor Paint, put on a light pattern Steel Ceiling, plastered the walls and frescoed the entire walls and ceiling white. Platforms 12 in. high were placed on both sides of the room, with a double row down the center. Electric lights were freely distributed down each aisle, all controlled by an Electric Button. The platforms are painted red, the floor gray, and a strip of carpet runs down each aisle.

If you can arrange a room of this description, then follow the fundamental principles laid down above in the arrangement of your Stoves and you will have a most pleasing effect; the appearance of it all will create an impression upon the purchaser, and will not only back up the advertising, but will prove a first and last aid to the salesman.

## A RULE.

Let me emphasize here a rule which will apply to all Stove departments, and I insist that you underscore it: *There should be nothing in the Stove room but Stoves.*



J. F. DOTY.



CHAS. SWAINE.

We have been entreated time and again to put a display of Utensils, or Enamel Ware, in this room, but it would be a most damaging thing, both in its effect upon the appearance of the room, and the greater fact that it would be a hindrance to a Stove salesman. When you take a Stove customer to a Stove room, as described above, you blot out everything else from his mind but the subject in hand—Stoves. The average customer does not buy a Stove often. He is not able to concentrate his mind upon this subject when there are other goods in the room that detract from its appearance, and also attract his at-

tention. Lots of women, for the time being, would be more interested in a bright new Tea Pot, to take the place of the old one, with the lid gone and the handle loose; I say, she would be more attracted to this than the vital question of Stoves.

## A CRITICISM AND AN ANSWER.

I hear one criticism from those who have not tried this scheme, and that is, that the every-day customer does not see your Stoves. My answer to this is that there is not a man or woman in your town, unless it be a very large one, who if they wish to buy a Stove would not go to a Hardware dealer for it. After two years' experience



C. E. HAAS.



L. LINDENBERG.

with the "ideal plan," as I choose to call it, I can emphatically state that the impression made upon the customer when he first enters the Stove room more than counteracts the loss you may anticipate from this source. But in addition we would advise that you have one or two Stoves on the main floor, which would suffice to call the attention of people to the fact that you have Stoves for sale.

Widely differing views as to the relative merits of stationary or movable platforms and trucks for Stove display were expressed by the membership, though on other points there was but little disagreement.

## President's Annual Address.

In his annual address, delivered at the opening of Tuesday's session, President H. S. Vincent expressed his warm appreciation of the loyal support given him by members during his term of office, and congratulated the association on its wonderful growth and its achievements. Noting the extent to which unfriendly and bitter competition has been removed by the closer contact and acquaintance afforded in these gatherings, Mr. Vincent continued, speaking in part as follows:

I wish to dwell upon this matter because I think it is one of the most important results that can come from association work. I refer to the personal side of competition in business. In coming to these conventions and meeting your competitor here you find that he is much the same kind of a man that you are. He is in the Hardware business to make money; and you should be in it for the same purpose. And anything that you can do to honorably further that aim should be done, and you should act with him in all matters tending to the building up of the Hardware business to that high plane to which it is entitled in the mercantile world of to-day. In picking out the leading business men of any city in the State I think I can safely say that you will find the Hardwaremen in each and every instance close to the top of the list.

The insurance feature of our association work has been of the greatest assistance to us in obtaining new members and retaining those that we have. Since I have been in Des Moines this week I have a number of times heard the statement, "I am carrying all the insurance I can get from the Iowa Retail Hardware Association, and am sorry I can't get more." This statement is one we should all be proud of, and reflects great credit upon the association and its officers.

## Mutual Fire Insurance.

Addresses upon the subject of mutual fire insurance were made by C. A. Peck, Berlin, Wis., secretary of the Wisconsin Retail Hardware Association, and by S. R. Miles, Mason City, president of the Iowa Mutual Insurance Company, in which facts and figures were freely

given that prove the unquestioned security of these organizations, their economical expense ratio and low premium rates.

The Hon. J. A. Smith, Osage, representing the Lumberman's Insurance Association, also gave a talk upon this subject, in which he told of the marvelous growth of that company, which in 13 years has accumulated a business that in round numbers amounts to \$16,000,000.

#### How to Take Inventory.

A paper on "Inventory: How to Take," was read by Paul C. DeVol, Council Bluffs, Iowa, in which Mr. DeVol described the methods used for taking inventory in his own store. The following extracts embody some of the suggestions offered for facilitating this ever recurring and difficult task:

On January 15 we begin at the front end of our Builders' Hardware and Shelf Goods department, and count the number of articles in each broken package, placing a slip of paper on each article stating the quantity, number, size and cost of same. Having thus disposed of broken packages we set two men to writing down and two to calling off the stock. If we had more men in our employ that were competent for this kind of work we could use as many crews of two men each as would be required to expedite the work. These slips should not be left too long on the shelves, as they are liable to get



F. R. CURRIE.



C. H. THOMAS.

lost, making a recount necessary and occasioning omission from the invoice. In this connection I will say that

#### YOU WILL FIND IT ADVANTAGEOUS TO MARK YOUR GOODS

to show the cost by the dozen instead of the piece. We formerly marked a part of our goods by the piece and it invariably made us trouble when we commenced to extend our invoice sheets, as we would have the quantity down by the piece and the price by the dozen, or *vice versa*. A double system of marking will cause confusion in extending invoice prices.

#### IT IS ALSO VERY IMPORTANT

that you get the stock down on your invoice in proper form. We try as far as possible to properly classify our goods on the invoice and avoid scattering them. We may wish to know how much we have invested in a certain class of goods, and this method enables us to figure by lists and discount to better advantage in getting the market prices. We use a loose leaf order sheet, with the sheets consecutively numbered similar to those used by the wholesalers, having a net price column, a list price column and a third column for the extensions.

#### OUR SHELVING IS CONSTRUCTED IN SECTIONS,

there being 20 in all. These we designate in our invoice sheet as upper section and lower section. For instance, we start with upper section No. 1, which contains all the full or unbroken packages, and when these goods are taken we go to lower section No. 1, which contains the broken packages; and we continue in this way through the entire 20 sections. The advantage of this method is that it enables us to readily refer to any article on our shelves from our invoice. It also familiarizes our clerks with the places for different kinds of goods, and they have no difficulty in properly putting away new goods on the shelves.

#### IN TAKING DOWN OUR INVOICE

we put the net price of each article in the "Net" column in plain figures, and if we know there has been an appreciable change in price on these articles we price them in our cost mark. This enables us to readily refer to the price when extending the sheets, and if the price

has changed we invoice the article at market price. We also mark such items with a blue pencil and after figuring the invoice all goods in our stock having this blue pencil mark are re-marked. This method keeps us in touch with changes in the market price of our goods.

I wish to say here that retailers owe a great deal of their advancement in late years to the efforts being made by jobbers to keep them in touch with

#### PRICE CHANGES,

through the distribution of loose leaf catalogues with their accompanying discount sheets. We have loose leaf catalogues to-day that keep us within 30 to 60 days of the market, and you will find it a great help, in pricing up your inventory, to use these catalogues.

#### GOODS SOLD BY LIST AND DISCOUNT

are put down in the "List" column on our sheets, and we figure the discount from the total list price. In case we wish to know how much money we have invested in a certain class of goods we start a new sheet, heading it with the name of the goods, and using as many sheets as may be required. By adding the footings of these sheets we get the amount invested in the goods so classified.

We try to keep our inventory in such shape that we can refer to it at any time and see just what quantity, sizes or number of an article we had in stock at the time of invoice. It is helpful in making future purchases, especially of spring and fall goods.

#### IT IS A GREAT ADVANTAGE

to have your stock arranged right on your shelves. Do not misplace goods, or put them away on the shelves regardless of the permanent place provided for them. Have a place for everything and as far as possible keep all goods in their proper place on the shelves. In figuring your invoice use market prices as near as you can. Do not figure goods at the price you bought them at six months or so ago. Figure them at the present market and if you have bought cheaply it will show to your advantage on your invoice.

#### Hardware Window Display.

No paper or subject presented at the convention aroused more interest than was shown in the address on "Window Display," delivered by E. H. Simmons of the Simmons Hardware Company, St. Louis. In order to practically illustrate the ideas and suggestions offered under this head, for the benefit of the convention, Mr. Simmons, with the help of two experts from his own house, dressed the windows of the Garver Hardware Company, one of Des Moines' principal retail Hardware stores. The general plan, as outlined in his discussion of this topic, was followed by Mr. Simmons in the arrangement of these windows. Mr. Simmons' interesting address will be given in a later issue.

#### A. R. Sale's Reports.

Secretary A. R. Sale's report was replete with records of the year's achievements, and, though full of optimistic hope for the future, sounded a warning to members of the danger that lies in overconfidence and content with present results. Relative to the gains made last year in membership, he said:

The Iowa Retail Hardware Association has added to its membership roll the past year 208 new names, or a gain of 41 per cent. on the number on the books at the opening of the eighth annual convention. This substantial growth has been made without any other aid than that of the usual efforts of the office solicitation by correspondence. To be more exact, we have on our books up to the date of this convention a total membership of 677. With members taken in at this meeting our total membership will probably be increased to 700.

In Mr. Sale's report as treasurer it was shown that the total receipts of the association for the last fiscal year were \$6341.14, the disbursements were \$3445, leaving a balance of \$2896.14.

The report of the Insurance Department showed the assets on January 1, 1907, to be \$17,480.57; ratio of loss to gross receipts, 30 per cent.; ratio of expense to gross receipts, 20 per cent.; cash rebate for 1907, 35 per cent.; total insurance in force January 1, 1907, \$1,564,290.

#### New Officers.

The election of officers resulted in the choice of the following officials:

PRESIDENT, P. C. DeVol, Council Bluffs.

VICE-PRESIDENT, J. F. Doty, West Liberty.



SECRETARY AND TREASURER, A. R. Sale, Mason City.

DIRECTORS: E. C. Barbour, Fort Madison, First District; J. F. Doty, West Liberty, Second District; H. C. Chapin, Union, Third District; F. R. Currie, Mason City, Fourth District; L. C. Abbott, Marshalltown, Fifth District; F. P. Marvin, Grinnell, Sixth District; C. T. Gadd, Des Moines, Seventh District; C. H. Thomas, Kent, Eighth District; P. C. DeVol, Council Bluffs, Ninth District; H. C. Vincent, Fort Dodge, Tenth District; C. E. Hass, La Mars, Eleventh District.

EXECUTIVE COMMITTEE: F. R. Currie, Mason City; L. C. Abbott, Marshalltown.

#### Shelf Displays.

A paper prepared by J. P. Talcott, Williams, Iowa, on "Shelf Displays," was read by A. W. Ross of the same town.

Mr. Talcott discussed his subject from the standpoint of a village Hardwareman, and gave some practical pointers on the arrangement and display of goods in the store and its general conduct.

#### Local Competition.

The subject of "Elimination of Personal Antagonism in Local Competition" was ably treated in a paper prepared by C. E. Swaine, Council Bluffs, which in his absence was read by Mr. Bailey and was as follows in part:

The direct outcome of personal antagonism between business men is business anarchy. Prices are cut to a bare margin of profit, then blind passion forgets itself and the margin is on the other side of the ledger. Goods are sold at an absolute loss, merely to get men inside the store and keep them out of the competitor's establishment. Contrast this with the results secured under what Ruskin calls "the laws of life"—government and co-operation. Personal animosities are swept aside, local competitors meet frequently to discuss ways and means for the advancement of the common good. A schedule of prices is arranged upon such staples as Nails, Wire, &c.—a fair price to the consumer, a living wage to clerks and workmen and a just profit to the retailer are guaranteed. Methods of taking inventory, window dressing or difficult problems of business management are discussed freely. Competitors feel more like men in such a healthy atmosphere of fraternity. As they go home in the evening their minds are upon measures of good, their step is livelier, their lungs breathe deeper and the world seems brighter. They have risen out of the mud and mire of personal antagonism.

Certainly he is but a counterfeit of a man who cannot meet his neighbors in a friendly way, who cannot look his business competitors squarely in the eye and gladly extend the hand of cordial good fellowship.

IF YOU REALLY THINK YOU HAVE A MEAN COMPETITOR,

one whom you believe to be the meanest man on earth—a price slasher and a business cut throat, here is your chance to prove your manhood. Perhaps the fault is not all on one side, perhaps your opinions are mutual and are the fruits of misunderstanding rather than of malice. Give your competitor the benefit of the doubt; go to his place of business, talk matters over in a frank and open manner. In nine out of ten cases he will meet you half way. Cease the competition of personal antagonism; co-operate. It pays.

Now, I would not convey the idea that all competition is to be eliminated—far from it—for healthy competition is the life of trade, as well as is co-operation. Without proper competition business dies of dry rot. The idea I would bring, however, is that competition should rise above private animosities, that it should display itself not in reckless cutting of prices, but in efforts to attract the customer by better methods. Good advertising, taste in window decoration, well balanced stock, courtesy of employees and desire to please—these are but a few of the too often neglected phases of healthy competition.

#### GENERAL WELFARE.

But the elimination of personal antagonism in local competition is of importance not only from the standpoint of the immediate community involved. It also has a great significance in the development of our State association. If this organization is to reach its maximum of efficiency it must enlist in its ranks every retail Hardware dealer of the State. One in a community will not suffice—we need them all. We are at the present time fighting the catalogue houses and endeavoring to prevent legislation for a parcels post, to substitute such concerns for the local dealer. We are trying to put upon the statute books of Iowa a just exemption law, one which will recognize the fact that the merchant is as much entitled to protection as is the man of salary. To accomplish these things we must present a united attack. With mutiny in the ranks, with personal antagonisms

running rife among local competitors, our cause is lost. The Iowa Retail Hardware Dealers' Association asks, then, that its present members forget any past antagonisms they may have had with their fellow dealers, and that the men outside the organization be brought in.

#### Resolutions.

Among the resolutions adopted were the following:

*Resolved*, That we appreciate the interest taken in our association work by the manufacturer, jobber and traveling salesmen, and fully realize that by their hospitality, good-fellowship and instructive methods this association has been assisted very much in making this meeting one of the most successful in the history of the association.

*Resolved*, That we, the Retail Hardware Dealers of the State of Iowa in convention assembled, respectfully petition the Thirty-second General Assembly of the State of Iowa to pass Senate Bill No. 196, known as "The Bulk Sale Bill," we believing said bill to be in the interests of the reputable retail dealer; and we recommend that the term "creditors" as used in the Bulk Sale bill be interpreted to mean only the direct creditors of the particular stock to be sold in bulk, by reason of said creditor having furnished either merchandise or money for said stock.

*Whereas*, There has been introduced in the present Legislature a bill known as the "Exemption Bill"; and

*Whereas*, We believe this is an honest bill and legislation that is justly due the retail merchants of Iowa; therefore, be it

*Resolved*, That this convention of retail Hardware dealers approve this bill, and the secretary be instructed to write the members of the Legislature, requesting them to give the bill their favorable consideration and support.

#### Convention Notes.

In an announcement made some time ago the association offered a series of three prizes, aggregating \$25 in amount, for the best window display by members of the association. Photographs of these displays were directed to be sent to the convention for exhibition and judgment. From this collection the following exhibitors were awarded prizes: A. J. Hoffman, Murray; Marvin Bros., Grinnell; Miles Hardware Company, Mason City. Several of the remaining photographs received honorable mention.

An album of photographs showing a line of up to date window displays, prepared by John E. Hardy, Portland, Ore., was shown in the exhibition booth of the Simmons Hardware Company.

Telegrams conveying greetings were received from the Ohio, Indiana and Connecticut associations assembled in convention in their respective States, and, upon motion, were ordered to be suitably acknowledged by the secretary.

On Thursday evening members of the association were entertained by the Des Moines Hardware Club, at a reception and theatrical programme given in Knights of Pythias Hall. The entertainment was admirably conducted, and was much enjoyed by the large number of guests present.

#### EXHIBITS AND EXHIBITORS.

- AMERICAN FORK & HOE COMPANY, Cleveland, Ohio: Represented by W. G. Pancoast. Souvenir, book sales aid.
- AMERICAN STEEL & WIRE COMPANY, Chicago, Ill.: Represented by T. H. Fuller, Leo P. Rider, R. A. Beak and E. M. Ryan. Souvenir, bandana handkerchief.
- ART STOVE COMPANY, Detroit: Represented by D. R. Smith and C. Samarius Brown. Souvenirs, Hatchet and pencil.
- E. C. ATKINS & CO., Indianapolis, Ind.: Saws. Represented by T. F. Barbour, P. L. Edwin and Al. Munnich. Souvenirs, comb and pin.
- BERGSTROM STOVE COMPANY, Neenah, Wis.: Represented by H. S. Brooks. Souvenir, button.
- BLACK SILK STOVE POLISH WORKS, Sterling, Ill.: Stove Polishes.
- BONNOT COMPANY, Canton, Ohio: Manufacturers Warm Air Furnaces. Represented by G. W. Johnston.
- COLE MFG. COMPANY, Chicago: Hot Blast Furnaces. Represented by H. C. Cole, C. W. Brelsford and R. P. Foster. Souvenir, aluminum rule.
- COLUMBIAN HARDWARE COMPANY, Cleveland, Ohio: Represented by J. A. Cassell and J. E. Stenger. Souvenirs, ink well and penknives.
- COLLINS & BURGIE COMPANY, Marengo, Ill.: Manufacturer Stoves and Ranges. Represented by K. A. Patrick.
- COMSTOCK-CASTLE STOVE COMPANY, Quincy, Ill.: Represented by C. W. Rains. Souvenir, dating stamp.
- CRIBBEN & SEXTON COMPANY, Chicago: Stoves and Ranges. Represented by W. A. Smith and H. S. Purres. Souvenir, memorandum book.
- DENNING WIRE & FENCE COMPANY, Cedar Rapids, Iowa: Represented by L. L. Barnum. Souvenir, paper knife.
- DES MOINES STOVE REPAIR COMPANY, Des Moines, Iowa: Represented by J. B. Green.
- DIEHL NOVELTY COMPANY, Sheboygan, Wis.: Hardware Novelties.
- F. DIECKMANN, Cincinnati, Ohio: Manufacturer Corrugated El-

- bows. Represented by Adolph Dieckmann. "Souvenir, grip tag.
- DOVER MFG. COMPANY, Canal Dover, Ohio: Asbestos Sad Irons. Represented by M. H. Snyder.
- ESTATE OF P. D. BECKWITH, Dowagiac, Mich.: Manufacturer of Round Oak Stoves. Represented by H. P. Knolton, J. L. Parket and J. O. Sargent. Souvenir, stein.
- EXCELSIOR STOVE & MFG. COMPANY, Quincy, Ill.: Represented by D. H. Lapp, H. Broun and Fred Hess. Souvenirs, dating stamp and pencil.
- FULLER-WARREN COMPANY, Milwaukee, Wis.: Stewart Stoves and Ranges. Represented by W. B. Barney and G. C. Barney. Souvenir, card case.
- GER WHIZ MFG. COMPANY, Des Moines, Iowa: Washers. Represented by M. R. Davis.
- GEM CITY STOVE MFG. COMPANY, Quincy, Ill.: Stoves and Furnaces. Represented by H. H. Smith.
- GLOBE MFG. COMPANY, Perry, Iowa: Washers. Represented by A. S. Kibley and O. W. McClune.
- GLOBE STOVE & RANGE COMPANY, Kokomo, Ind.: Represented by James C. Patten and Frank S. Hawken. Souvenir, dating stamp.
- GREEN FOUNDRY & FURNACE WORKS, Des Moines, Iowa: Represented by F. O. Green, Will Van Sittert and Robert Burrows.
- HAWKEYE INCUBATOR COMPANY, Newton, Iowa: Washers. Represented by O. W. Jackson.
- HUNT, HELM, FERRIS & Co., Harvard, Ill.: Haying Tools and Hardware Specialties. Represented by G. H. Chapman and F. L. Stevens. Souvenirs, turtle paper weight and paper knife.
- E. H. HUENEFELD COMPANY, Cincinnati: Stoves and Tinnings Supplies. Represented by W. F. Palmer.
- IDEAL FENCE TOOL COMPANY, Abingdon, Ill.: Represented by A. R. Clements.
- IOWA MUZZLE COMPANY, Carroll, Iowa: Represented by J. J. Meyers.
- KEITH FURNACE COMPANY, Des Moines, Iowa: Represented by George E. Willis, Bert R. Pranke, R. J. Allen and Geo. D. Evans. Souvenir, memorandum book.
- LASHER MFG. COMPANY, Davenport, Iowa: Pot Covers and Cabinets. Represented by L. Grilk. Souvenir, plate scraper.
- LENOX FURNACE COMPANY, Marshalltown, Iowa: Represented by F. J. Kiesel and J. E. Doughty. Souvenirs, memorandum book, mirror and pin.
- LISK MFG. COMPANY, Canandaigua, N. Y.: Enameled and Kitchen Ware. Represented by Thos. Delaney. Souvenir, dinner pail.
- LOWE BROTHERS COMPANY, Dayton, Ohio: Paints. Represented by H. R. Harries and J. J. Mahoney. Souvenir, pin.
- LUNDY MFG. COMPANY, Marshalltown, Iowa: Double Blast Soldering Furnace. Represented by N. W. Lundy.
- LYONS SPECIALTY COMPANY, Lyons, Iowa: Steel Barn Door Latch. Represented by W. Peterson.
- MAC FURNACE WORKS, Des Moines, Iowa: Represented by C. W. Kendall.
- MCCASKEY REGISTER COMPANY, Alliance, Ohio: Manufacturer Petty Account Cabinet. Represented by James S. Stacy.
- MAJESTIC MFG. COMPANY, St. Louis, Mo.: Stoves and Ranges. Represented by A. J. Collins.
- MALLEABLE IRON RANGE COMPANY, Beaver Dam, Iowa: Represented by E. C. Cook and L. A. Munn. Souvenirs, button and spoon.
- MALLEABLE STEEL RANGE MFG. COMPANY, South Bend, Ind.: Represented by H. C. Fowler and R. E. Adams. Souvenir, watch fob.
- MARTIN & MARTIN, Chicago: Manufacturers Stove Polish. Represented by J. W. Phillips. Souvenir, sample Polish.
- MERCHANTS' SAFE ACCOUNT COMPANY, Des Moines, Iowa: Short account system. Represented by A. L. Creiger.
- METAL CONSTRUCTION COMPANY, Des Moines, Iowa: Represented by H. H. Grahl.
- MICHIGAN STOVE COMPANY, Detroit, Mich.: Represented by H. S. Cleveland and E. J. Mongan. Souvenir, coin purse.
- MILWAUKEE CORRUGATING COMPANY, Milwaukee, Wis.: Manufacturer Metal Ceilings. Represented by Wm. Horn, P. E. Sauerwein and L. E. Thompson.
- MUSGRAVE FENCE COMPANY, Des Moines, Iowa: Represented by E. C. Musgrave.
- NATIONAL STOVE COMPANY, St. Louis, Mo.: Represented by H. B. Huffer and Dwight Davis. Souvenir, paper knife.
- NICKEL PLATE STOVE POLISH COMPANY, Chicago: Represented by J. W. Gill and W. J. Briggs.
- THE 1900 WASHER COMPANY, Cedar Rapids, Iowa: Represented by F. A. Dennison.
- OHIO VARNISH COMPANY, Chicago: Represented by Geo. C. Powers. Souvenirs, watch fob and pencil holder.
- OSMUNDSON SPADE MFG. COMPANY, Perry, Iowa: One-piece Tilling Spades. Represented by H. Osmundson.
- PARAGON MFG. COMPANY, Chicago: Washing Machines. Represented by W. McCorriston.
- PEEBLES FENCE COMPANY, Adrian, Mich.: Represented by A. L. Parker.
- PENINSULAR STOVE COMPANY, Detroit: Represented by F. S. Cole, W. E. Moore and W. T. Whiffen.
- PERRY PLIER & TOOL COMPANY, Perry, Iowa: Represented by G. M. Mason.
- PIKE MFG. COMPANY, Pike, N. H.: Oilstones and Razor Hones. Represented by R. J. Horton. Souvenirs, paper weight, whetstone and stone box.
- PITTSBURGH PLATE GLASS COMPANY, Pittsburgh, Pa.: Patton's Paints. Represented by W. C. Byrand and J. P. Maxwell. Souvenir, money bank.
- PITTSBURGH STEEL COMPANY, Pittsburgh, Pa.: Represented by W. F. Ellsworth and O. J. Goodwin. Souvenirs, nail puzzle and dictionary.
- J. E. PORTER COMPANY, Ottawa, Ill.: Manufacturer Hay Tools and Pumps. Represented by Frank M. Yentzer. Souvenirs, watch fob and card case.
- W. J. PRATT COMPANY, Des Moines, Iowa: Lanterns. Souvenir, buttons.
- JOHN PRITZLAFF HARDWARE COMPANY, Milwaukee, Wis.: Represented by F. A. Hughes, W. J. Konvalinka, M. A. Heegaard, J. H. Grunwald, O. E. Winn, J. W. Anacker and W. A. Poppinghausen. Souvenir, blotter.
- T. C. PROUTY COMPANY, Albion, Mich.: Spring Hinges. Represented by Mark Merriman and Owen B. Granger. Souvenir, score card.
- RATHBONE, SARD & Co., Aurora, Ill.: Acorn Stoves. Represented by J. W. Forbes and J. H. Nye. Souvenir, Acorn bank.
- ROCHESTER STAMPING COMPANY, Rochester, N. Y.: Represented by J. G. Funk and R. M. Fletcher.
- ROCK ISLAND STOVE COMPANY, Rock Island, Ill.: Represented by S. D. Clelland and A. B. T. Moore. Souvenirs, mirror and pocket-book.
- ROBESON CUTLERY COMPANY, Rochester, N. Y.: Represented by J. G. Funk and R. M. Fletcher.
- ST. PAUL ROOFING, CORNICE & ORNAMENT COMPANY, St. Paul, Minn. Represented by A. M. Smith.
- SCHREIBER & CONCHAR MFG. COMPANY, Dubuque, Iowa: Hardware Specialties. Represented by Ernest R. Calvert.
- SIMMONS HARDWARE COMPANY, St. Louis, Mo.: Represented by E. H. Simmons, Fred Kuhn, L. C. Booth, G. J. Duffett, M. J. Holt and T. J. Diamond. Souvenir, button.
- ULBRICH SEED CORN TESTER COMPANY, Atlantic, Iowa: Represented by W. B. McGorrick.
- UNCLE SAM WASHER COMPANY, Des Moines, Iowa: Washers. Represented by L. Cammack.
- UNION METALLIC CARTRIDGE COMPANY, Bridgeport, Conn.
- WAHLE FOUNDRY & MACHINE COMPANY, Davenport, Iowa: Washers. Represented by Anton Nielsen. Souvenir, snow-ball girl.
- WARREN PAINT COMPANY, Warren, Ohio: Represented by Andrew J. Shepard. Souvenirs, watch fob and pencil holder.
- WAVERLY WOODENWARE WORKS, St. Joseph, Mo.: Washers. Represented by C. L. Faust. Souvenir, dating stamp.
- WINCHESTER REPEATING ARMS COMPANY, New Haven, Conn.: Represented by Fred C. Whitney.
- WHITE LILY WASHER COMPANY, Davenport, Iowa: Represented by Theo. H. Rosche and J. C. Foss. Souvenir, ink well.
- YALE & TOWNE MFG. COMPANY, New York: Locks and Builders' Hardware. Represented by A. B. Howell. Souvenir, paper knife.

### REQUESTS FOR CATALOGUES, Etc.

*The trade is given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.*

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses, with whom manufacturers may desire to communicate:

FROM MOXHAM HARDWARE COMPANY, Johnstown, Pa., conducting a retail business in Shelf and Heavy Hardware, Stoves, Tinware, Paints, Oils, Sporting and Athletic Goods. The company will remodel its storeroom, 40 x 120 ft. in size.

FROM COUNCIL HILL HARDWARE COMPANY, which has purchased the business of W. L. Knouff, in Council Hill, I. T. The company will carry Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Paints, Oils, Sporting and Athletic Goods.

FROM THE STURTZ HARDWARE COMPANY, succeeding the Gilbert Sturtz Hardware Company in Arkansas City, Kan. The company will conduct a wholesale and retail business, carrying Shelf and Heavy Hardware, Stoves, Tinware, Paints, Oils, Sporting and Athletic Goods, Wagon and Carriage, Woodwork, Plumbing and Gas Goods and do Tin and Sheet Metal Work.

FROM FRANK F. POOL & Co., who have purchased the business of J. B. Myers, in Whitten, Iowa, carrying Shelf and Heavy Hardware, Stoves, Tinware and Sewing Machines. Mr. Pool was until recently the junior member of the firm of Trumbull & Pool, in Conrad, Iowa.

FROM CHAS. ZIMMERMAN & SONS, 2404-2406 Pennsylvania avenue, Baltimore, Md., who will make a specialty



of Builders' Hardware. The firm has enlarged its quarters by the addition of No. 2404 and by alterations has more than doubled its storage facilities, permitting the carrying of a larger and more varied assortment of stock.

FROM ROGERS & NICHOLAS HARDWARE COMPANY, 214 Lake street, Oak Park, Ill., which has recently incorporated and is preparing to open a general Hardware and contractors' supply store at that point.

### FARM IMPLEMENT NEWS BUYER'S GUIDE

THE FARM IMPLEMENT NEWS COMPANY, Masonic Temple, Chicago, Ill., in accordance with a yearly custom, has just issued the seventeenth annual edition of the "Farm Implement News Buyer's Guide," a cloth bound volume of 558 pages. It is an exhaustive directory of manufacturers of Farm and Garden Implements, Wagons, Carriages and other Vehicles, Gasoline Engines, Windmills, Pumps, Dairy Apparatus, Wire Fencing and the innumerable accessory lines sold by Implement dealers. Pages 33 to 342 contain classified lists of Implements and related lines, both names of makers and trade names of the articles. Pages 343 to 402 are devoted to Vehicle classification. Following this department is a general directory of the manufacturers, alphabetically by States and post offices, giving under each name and address a full list of all goods made by each manufacturer and a list of branch houses, jobbers and transfer houses for 1907, as furnished by the makers.

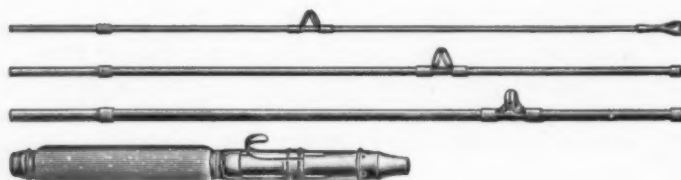
### MISCELLANEOUS NOTES.

#### Stove Pipe Wire.

Wright Wire Company, Worcester, Mass., is putting on the market annealed stove pipe wire in coils of 50 ft., each coil in a pasteboard box same as is used for picture wire. Twelve of these boxes are packed in a carton, making attractive shelf goods, and can be retailed as low as 5 cents a box.

#### Samson Steel Fishing Rods.

Union Hardware Company, Torrington, Conn., has got out a line of steel fishing rods, as illustrated herewith. They are regularly made with cork handles, nickel plated trimmings on the butts, and reel seat either above or below the handle. The rod proper is finished in a dead black enamel, in order as far as possible not to reflect the light, which is alluded to as an advantage. The trimmings of the rods are nickel plated or German silver. The best material is used, it is explained, and great care is taken in the finish of the rods. The full line of these



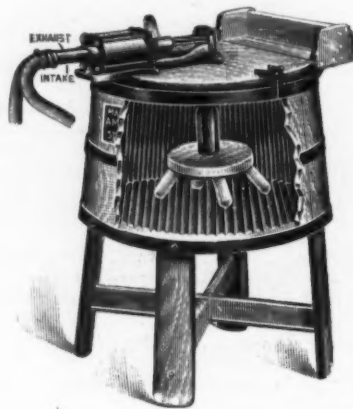
Samson Steel Fishing Rods.

goods includes the regular fly rod, the bait rod, with the various mountings and trimmings, and special bait casting rod in all mountings and trimmings.

#### The Royal Motor Washing Machine.

The Wayne Mfg. Company, 124 Sidney street, St. Louis, Mo., is offering the trade the motor washer herewith illustrated. It is operated by an ordinary city pressure of 35 lb. or more, and, provided the water supply is sufficient, it will operate on a much lower pressure. The motor is carefully constructed of brass and bronze, which

prevents rust. The machine requires no attention while in operation and uses a small amount of water. The motor is attached to a metal base plate, which in turn is attached to the lid of the machine. The principle on which the washing is done is that of a piston with a rack bar attached, traveling with a reciprocating motion, bearing on a pinion which is attached to a perpendicular steel shaft. On the lower end of the shaft inside the tub is fitted a paddle post, and on the paddle post is an adjustable wood pin wheel or dolly with projecting pins. The pins come in contact with the clothes, moving them



The Royal Motor Washing Machine.

a half turn in one direction, then with a sudden reverse a half turn in the opposite direction, thus drawing the hot suds through the clothes. The manufacturer claims, excepting the fact that it is self-operating, that the greatest advantage lies in the quick reverse that cleanses the clothes in a very satisfactory manner. The tub is made of carefully selected, thoroughly kiln dried Louisiana red cypress, durable in construction, and is filled and varnished in the natural wood. The heavy steel hoops are finished in green bronze. This combination of colors gives the machine a pleasing appearance. The corrugated inner surface of the tub acts as a scrub board, and increases the agitation of the water. The machine is built to withstand hard wear and continuous usage and will wash the heaviest and lightest fabrics. All parts of the washer that are exposed to the action of the water are heavily galvanized. The shipping weight of the machine is 75 lb.

#### Chisels and Bits in Boxes.

The James Swan Company, Seymour, Conn., Russell & Erwin Mfg. Company, 43-47 Chambers street, New



Fig. 1.—Duplex Chisel Box.

York, sole agent, is putting on the market chisels and bits in boxes, as illustrated in the accompanying cuts. By a simple operation in opening the patented duplex chisel box, shown in Fig. 1, the entire set of chisels is

available for immediate use. The boxes are made of hardwood and finely finished, and their compactness is referred to as being not only handy but time saving. The boxes are only furnished when ordered in sets, complete with chisels. There are 12 chisels in the set, one each from  $\frac{1}{8}$  to 2 in. With one operation in opening the patent extension bit box, shown in Fig. 2, the entire set of bits is available for use. The box can also be closed by one operation. The bits in the first tray are available



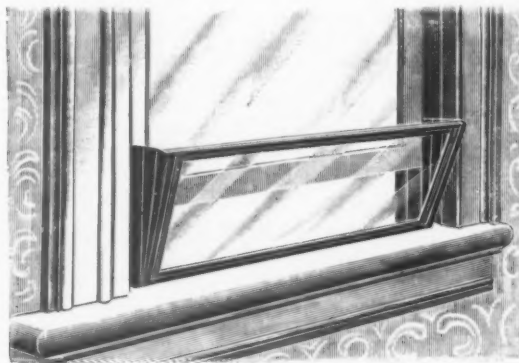
Fig. 2.—Extension Bit Box.

for use by simply lifting the cover without disturbing the bits in the other trays. This feature is alluded to as a distinct advantage, a time saver and a convenience to the mechanic. The boxes are made of hardwood and finely finished and are furnished only when ordered in sets, complete with bits. Nine different grades of bits are put up in these boxes, in sets of 13, one each, 4 to 16-16ths.

### Ideal Window Ventilator.

The Ideal Ventilator Company, 338 Weybosset street, Providence, R. I., the New York manager of which is B. Taylor Bruce, 120 Liberty street, is manufacturing the Ideal ventilator, here illustrated. Heretofore this de-

vice has been marketed in certain localities by specialists, rather than through trade channels, but, it is believed, a good business can be developed by hardwaremen all over the country at a good profit. The ventilator consists merely of a sheet of glass, plain or beveled, set in a narrow frame of wood in any finish to match interior trim and to fit any width of window. At each side of the frame on stop bead is screwed a folding or collapsible metal bracket, which permits adjustability from a vertical



Ideal Window Ventilator in Position.

position parallel with the window to an angle of 20 degrees deflection, and without appreciable injury to the woodwork. The transparent sash, at such angle as may best meet the prevailing atmospheric conditions, causes the fresh incoming air to be deflected toward the center of the ceiling, where it meets the warmer air, with which it becomes thoroughly mixed, thus introducing constantly a good volume of the best available outer air without the annoyance or danger from drafts, whether in office or residence. It also provides adequate ventilation without the risk of disarranging papers and other light articles on desks and other furniture. The light is unobstructed and free access to the window is instantly obtained for cleaning, &c., by merely lifting the frame out of bracket for the time being. There is also no interference with the customary movement of window screen, shade, curtain or other hangings, and it is adapted for old as well as new construction, keeping out both rain and snow. Frames of wood can be furnished regularly in golden, light or French oaks, cherry, mahogany and white enamel or other finishes to specification.

## PAINTS, OILS AND COLORS

### Animal, Fish and Vegetable Oils—

Linseed, City, raw.....	42	@43
City, Boiled.....	43	@44
State and Western, raw.....	40	@41
Raw Calcutta, in bbls.....	70	@71
Lard, Extra Prime, Winter.....	79	@80
Extra No. 1.....	51	@52
No. 1.....	45	@46
Cotton-seed, Crude, f.o.b. mills.....	35	@36
Summer Yellow, Prime.....	48	@49
Summer White.....	54	@55
Yellow Winter.....	52	@53
Sperm, Crude.....	58	@59
Natural Winter.....	70	@71
Bleached Winter.....	73	@74
Bleached Winter, Extra.....	75	@76
Tallow, Prime.....	60	@61
Whale, Crude.....	35	@36
Natural Winter.....	45	@46
Bleached Winter.....	47	@48
Extra Bleached Winter.....	49	@50
Menhaden, Brown, Strained.....	31	@32
Light Strained.....	31	@32
Southern.....	27	@28
Cocunut, Ceylon.....	9	@10
Cochin.....	10	@11
Cod, Domestic, Prime.....	31	@32
Newfoundland.....	35	@36
Red, Elaine.....	47	@48
Saponified.....	10	@11
Olive, Italian, bbls., Yellow.....	70	@71
Nutsfoot, Prime.....	56	@57
Palm, Logos.....	7	@8

### Mineral Oils—

Black, 29 gravity, 25@30 cold.....	11	@12
29 gravity, 15 cold test.....	12	@13
Summer.....	11	@12
Cylinder, light filtered.....	18	@19
Dark, filtered.....	16	@17
Paraffine, 903-907 gravity.....	14	@15
903 gravity.....	13	@14
905 gravity.....	10	@11
Red.....	13	@14

### Miscellaneous—

Barytes:		
White, Foreign.....	18.50@20.50	@19
Amer. floated.....	19.00@20.00	@20
Off color.....	13.00@16.50	@14
Chalk, in bulk.....	3.00@3.25	@3
In bbls.....	100 lb.	@35
China Clay, Imported.....	11.00@17.50	@12
Cobalt, Oxide.....	100 lb.	2.50@2.60
Whiting, Commercial.....	100 lb.	.43@.52
Gilders.....	100 lb.	.55@.65
Ex. Gilders.....	100 lb.	.60@.70
Putty, Commercial—	100 lb.	
In bladders.....	\$1.70	@1.85
In bbls. or tubs.....	1.20	@1.45
In 1 lb to 5 lb cans.....	2.65	@2.95
In 12 1/2 to 50 lb cans.....	1.50	@1.90
Spirits Turpentine—	gal.	
In Oil bbls.....	74 1/2@75	@75 1/2
In machine bbls.....	75	@75 1/2
Glue—	lb.	
Cabinet.....	12	@15
Common Bone.....	7 1/2	@9
Extra White.....	18	@24
Foot Stock, White.....	12	@14
Foot Stock, Brown.....	9	@11
German Hide.....	12	@15
French.....	10	@10
Irish.....	13	@16
Low Grade.....	10	@12
Medium White.....	14	@17
Gum Shellac—	lb.	
Bleached Commercial.....	45	@48
Bones, Dried.....	58	@60
Button L.....	59	@60
Flue Orange.....	56	@57
A. C. Garnet.....	45	@46
Kala Button.....	37	@38
D. C.....	61	@62
Octagon B.....	45	@46
T. N.....	27	@28
V. S. O.....	59	@60

### Colors in Oil—

Black, Lampblack.....	12	@14
Blue, Chinese.....	36	@46
Blue, Prussian.....	32	@36

Blue, Ultramarine.....	13	@16
Brown, Vandyke.....	11	@14
Green, Chrome.....	12	@16
Green, Paris.....	21	@24
Sienna, Raw.....	12	@15
Sienna, Burnt.....	12	@15
Umber, Raw.....	11	@14
Umber, Burnt.....	11	@14

### White Lead, Zinc, &c.—

Lead, English white, in Oil.....	9 1/2@10	
Lead, American White:		
Lots of 500 lb or over, in Oil.....	7 1/2	@8
Lots less than 500 lb, in Oil.....	8	@9
Lead, White, in oil, 25 lb tin		
pails, add to keg price.....	1/2	@1
Lead, White, in oil, 12 1/2 lb tin		
pails, add to keg price.....	1	@2
Lead, White, in oil, 1 to 5 lb		
ass'ted tins, add to keg price.....	1 1/2	@2
Lead, American, Terms: For lots 12		
tons and over 1/4¢ rebate; and 2% for		
cash if paid in 15 days from date of		
invoice; for lots of 500 lbs. and over		
2% for cash if paid in 15 days from		
date of invoice, for lots of less than		
500 lbs. net.....	5 1/2@5 3/4	
Zinc, French:		
Antwerp, Red Seal, dry.....	8 1/2	@9
Antwerp, Green Seal, dry.....	10 1/2	@11
Paris, Red Seal, dry.....	9 1/2	@10
Paris, Green Seal, dry.....	11	@12
Zinc, V. M. French, in Poppy Oil:		
Green Seal:		
Lots of 1 ton and over.....	13 1/4@13 1/2	
Lots of less than 1 ton.....	13 1/2@13 3/4	
Discounts—French Zinc—Discounts		
to buyers of 10 bbl. lots of one or mixed		
grades, 1%; 25 bbls., 2%; 50 bbls., 4%.		
Zinc, V. M. French, in Poppy Oil:		
Red Seal:		
Lots of 1 ton and over.....	11 1/4@11 1/2	
Lots of less than 1 ton.....	12 1/4@12 1/2	
Discounts—French Zinc—Discounts		
to buyers of 10 bbl. lots of one or mixed		
grades, 1%; 25 bbls., 2%; 50 bbls., 4%.		
Dry Colors—	lb.	
Black, Carbon.....	4 1/2@10	
Black Drop, American.....	4	@6
Black Drop, English.....	5	@15

Black, Ivory.....	16	@20
Lamp, Com.....	4	@6
Blue, Celestial.....	4	@6
Blue, Chinese.....	30	@33
Blue, Prussian.....	28	@32
Blue, Ultramarine.....	4 1/2	@15
Brown, Spanish.....	1 1/2	@1
Carmine, No. 40.....	\$3.10@3.25	
Green, Chrome, ordinary.....	3 1/2	@7
Green, Chrome, pure.....	17	@25
Lead, Red, bbls., 1/2 bbls., kegs.....	7 1/2	@8
Litharge, bbls., 1/2 bbls., kegs.....	7 1/2	@8
Ocher, American.....	10	@12
American Golden.....	2 1/2	@3 1/2
French.....	1 1/2	@2
Foreign Golden.....	3	@4
Orange Mineral, English.....	10	@12
French.....	10 1/2	@12
German.....	8 1/2	@10
American.....	8 1/2	@10
Red, Indian, English.....	1 1/2	@6
American.....	3	@3 1/2
Red, Turkey, English.....	4	@10
Red, Tuscan, English.....	7	@10
Red, Venetian, Amer.....	100 lb.	\$0.50@1.25
English.....	100 lb.	\$1.15@1.75
Sienna, Italian, Burnt and		
Powdered.....	3	@9 1/2
Italian, Raw, Powdered.....	3	@7
American, Raw.....	1 1/2	@2
American Burnt and Pow'd.....	1 1/2	@2
Talc, French.....	17	@25.00
American.....	100 lb.	90¢@1.00
Terra Alba, French.....	100 lb.	80¢@1.00
English.....	100 lb.	80¢@1.00
American.....	100 lb.	75¢@.80
American.....	100 lb.	80¢@.85
Umber, T'key, Rnt. & Pow'd.....	2 1/2	@3 1/2
Turkey, Raw and Powdered.....	2 1/2	@3 1/2
Burnt, American.....	1 1/2	@2
Raw, American.....	1 1/2	@2
Yellow Chrome.....	13	@15
Vermilion, American Lead.....	10	@25
Quicksilver, bulk.....	65	@7
Quicksilver, bags.....	65	@7
English, Imported.....	85	@70
Chinese.....	\$2.90@3.00	



# Current Hardware Prices.

**General Goods.**—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

**Special Goods.**—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

**Range of Prices.**—A range of prices is indicated by means of the symbol @. Thus 33½ @ 33½ & 10% signifies

that the price of the goods in question ranges from 33½ per cent. discount to 33½ and 10 per cent. discount.

**Names of Manufacturers.**—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1906, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

**Standard Lists.**—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

**Additions and Corrections.**—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

## Adjusters, Blind—

Domestic,  $\frac{1}{2}$  doz. \$3.00.....33½%  
North's.....10%  
Zimmerman's—See Fasteners, Blind.

## Window Stop—

Ives' Patent.....35%  
Taplin's Perfection.....35%

## Ammunition—See Caps, Cartridges, Shells, &c.

## Anti-Rattlers—

Fernald Mfg. Co. Burton Anti-Rattlers,  $\frac{1}{2}$  doz. pairs, Nos. 1, \$0.75; 2, \$0.60; 4, \$1.00; 5, \$0.50.  
Fernald Quick Shifter,  $\frac{1}{2}$  doz. pairs.....\$2.00@3.00

## Anvils—American—

Eagle Anvils..... $\frac{1}{2}$  lb. @8½¢  
Hay-Budden, Wrought..... $\frac{1}{2}$  lb. @9½¢  
Trenton..... $\frac{1}{2}$  lb. @9½¢

## Imported—

Peter Wright & Sons,  $\frac{1}{2}$  lb. 64 to 349 lb. 11½¢; 350 to 600 lb. 11¼¢.  
Anvil, Vise and Drill—  
Millers Falls Co., \$18.00.....15½-10%

## Apple Parers—See Parers, Apple, &c.

## Aprons, Blacksmiths'—

Livingston Nail Co.....33½%

## Augers and Bits—

Com. Double Spur.....70%  
Jennings' ruin, reg. finish.....60½@60½-10%

## Black Lip or Blued—

Boring Mach. Augers.....70%  
Car Bits, 12-in. twist.....40½-10%  
Ford's Auger and Car Bits.....40½-10%  
Ft. Washington Auger Co., Concord's Pat. Auger Bits.....35%  
Fortner Pat. Auger Bits.....25%  
C. E. Jennings & Co.:  
No. 10 ext. lip, R. Jennings' list.....25%  
No. 30, R. Jennings' list.....40½-10%  
Russell Jennings.....25½-10½-10%  
L'Hommedieu Car Bits.....10%  
Mayhew's Countersink Bits.....45%  
Pugh's Black.....20%  
Pugh's Jennings' Pattern.....35%  
Snell's Auger Bits.....60%  
Snell's Bell Hangers' Bits.....60%  
Snell's Car Bits, 12-in. twist.....60%  
Snell's King Auger Bits.....50%  
Wright's Jennings' Bits.....50%

## Bit Stock Drills—

See Drills, Twist.

## Expansive Bits—

Clark's small, \$18; large, \$26.....50½-10%  
Clark's Pattern, No. 1,  $\frac{1}{2}$  doz. \$26; No. 2, \$18.....60½-10½-10%  
Ford's, Clark's Pattern.....60%  
C. E. Jennings & Co., Steer's Pat. 25½-10%  
Lavigne Pat., small size, \$18.00; large size, \$26.00.....60½-10½-10%  
Swan's.....60%

## Gimlet Bits—

Common Dble. Cut.....\$3.00@3.25  
German Pattern, Nos. 1 to 10, \$4.75; 11 to 13, \$5.75

## Hollow Augers—

Bonney Pat., per doz. \$5.50@6.00  
Ames.....25½-10%  
Universal.....20%  
Wood's Universal.....25%

## Ship Augers and Bits—

Ship Augers.....40½-10%  
Ford's.....33½-5%  
C. E. Jennings & Co.:  
L'Hommedieu's.....15%  
Watrous'.....33½@7½%  
Snell's.....40%

## Awl Hfts—See Handles, Mechanics' Tool.

## Awls—

Brad Awls:  
Handled.....gro. \$2.75@3.00  
Unhanded, Shl'dered.....gro. \$3@3.25  
Unhanded, Patent.....gro. \$6@7.00

## Peg Awls—

Unhanded, Patent, gro. 31@34¢  
Unhanded, Shl'dered.....gro. 65@70¢

## Scratch Awls—

Handled, Com.....gro. \$3.50@4.00  
Handled, Socket.....gro. \$11.50@12.00

## Awl and Tool Sets—See Sets, Awl and Tool.

## Axes—

Single Bit, base weights: Per doz.  
First Quality.....\$4.75@5.00  
Second Quality.....\$4.25@4.50

## Double Bit, base weights: Per doz.

First Quality.....\$7.00@7.50  
Second Quality.....\$6.50@6.75

## Axle Grease—

See Grease, Axle

## Axles—Iron or Steel

Concord, Loose Collar.....4½@5¢  
Concord, Solid Collar.....4½@5¢  
No. 1 Common, Loose.....3½@4¢  
No. 1½ Com., New Styles.....4½@5¢  
No. 2 Solid Collar.....3½@4¢  
Half Patent.....4½@5¢

Nos. 7, 8, 11 and 12.....70@75%  
Nos. 13 to 14.....70@75%  
Nos. 15 to 18.....75@75½%  
Nos. 19 to 22.....75@75½%

## Boxes, Axle—

Common and Concord, not turned lb., 4½@5¢  
Common and Concord, turned lb., 5½@6¢  
Half Patent.....lb., 9½@10¢

## Bait—Fishing—

Hendryx:  
A Bait.....20%  
B Bait.....25%  
Competitor Bait.....20½%

## Balances—Sash—

Caldwell new list.....50%  
Pullman.....50½@50%  
Spring—

Spring Balances.....50½-10@60%  
Chatillon's:  
Light Spz. Balances.....50½-10%  
Straight Balances.....40@40½-10%  
Circular Balances.....50½-10%  
Large Dial.....30%  
Barb Wire—See Wire, Barb.

## Bars—Crow—

Steel Crowbars, 10 to 40 lb. per lb., 3@3½¢

## Towel

No. 10 Ideal, Metal Plate..... $\frac{1}{2}$  gro. \$5.50

## Beams, Scale—

Scale Beams.....40%  
Chatillon's No. 1.....30%  
Chatillon's No. 2.....40%

## Beaters, Carpet—

Holt-Lyon Co.:  
No. 12 Wire Coppered  $\frac{1}{2}$  doz. \$0.80; Tinned.....\$0.85  
No. 11 Wire Coppered  $\frac{1}{2}$  doz. \$1.15; Tinned.....\$1.20  
No. 10 Wire Tinned..... $\frac{1}{2}$  doz. \$1.50  
Western W. G. Co.:  
No. 1 Electric..... $\frac{1}{2}$  gro. \$7.80  
No. 2 Buffalo..... $\frac{1}{2}$  gro. \$9.00  
No. 3 Perfection Dust..... $\frac{1}{2}$  gro. \$9.00

## Egg—

Holt-Lyon Co.:  
Holt, per doz., No. 5, Jap'd, \$0.80; No. A, Jap'd, \$1.15; No. B, Jap'd, \$1.85; No. 6, Jap'd, \$1.65.  
Lyon, Jap'd, per doz., No. 2, \$1.35.  
Taplin Mfg. Co.:  
Improved Dover, per gro., No. 60, \$6.00; No. 75, \$6.50; No. 100, \$7.00; No. 102, Tin'd, \$8.50; No. 150, Hotel, \$15.00; No. 152, Hotel Tin'd, \$17.00; No. 200, Tumbler, \$8.50; No. 202, Tumbler Tin'd, \$9.50; No. 300, Mammoth, per doz., \$25.00.  
Turner & Seymour Mfg. Co.:  
T. & S. Dover.....\$6.00  
Western W. G. Co.,  $\frac{1}{2}$  gro., Buffalo, No. 2, \$8.00; Perfection, No. 3, \$9.00.  
Wonder (H. M. Co.)..... $\frac{1}{2}$  gro. net, \$6.25

## Bellows—

Blacksmith, Standard List.....  
Split Leather.....65%  
Grain Leather.....60%

## Hand—

Inch.....6 7 8 9 10  
Doz.....\$5.50 6.15 6.60 7.15 7.70

## Molders—

Inch.....9 10 11 12 14  
Doz.....\$8.00 9.00 10.50 12.50 14.50

## Bells—Cow—

Ordinary Goods.....75½@75½-10½%  
High grade.....70½-10@75%  
Jersey.....75½-10%  
Texas Star.....50%

## Door—

Abbe's Gong.....45%  
Barton Gong.....50%  
Home, R. & E. Mfg. Co.'s.....50½-10%  
Trip Gong.....50½-10@50½-10%  
Yankee Gong.....55%

## Hand—

Polished, Brass.....60@60½%  
White Metal.....50½-10@50½-10%  
Nickel Plated.....50@50½-10%

## Stiles.....60½-10@50½-10½%

Cone's Globe Hand Bens.....33½@35%  
Silver Chime.....33½@35%

## Miscellaneous—

Farm Bells.....lb., 2½@2½¢  
Church and School......60%  
Table Call Bells.....50@50½-10%

## Belting—Leather—

Extra Heavy, Short Lap.....60½%  
Regular Short Lap.....60½-10½%  
Standard.....70%  
Light Standard.....70½%  
Cut Leather Lacing.....45%  
Leather Lacing Sides, per sq. ft. 25¢

## Rubber—

Agricultural (Low Grade).....75@75½%  
Common Standard.....70@70½-10%  
Standard.....60½@60½-10%  
Extra.....60½-10@60½-10%  
High Grade.....50½@50½-10%

## Bench Stops—

See Stops, Bench

## Benders and Upsetters, Tire—

Detroit Perfected Tire Bender.....40%  
Detroit Stoddard's Lightning Tire Upsetters, No. 1, \$4.25; No. 2, \$7.25; No. 3, \$10.50; No. 4, \$16.25; No. 5, \$20.50.  
Green River Tire Benders and Upsetters.....30%

## Bicycle Goods—

John S. Leng's Son & Co.'s 1907 list:  
Chain, Parts, Spokes.....50%  
Tubes.....60%

## Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See Augers and Bits.

## Blocks—Tackle—

Common Wooden.....75%  
Harts St. Tackle Blocks.....50@50½%  
B. & L. B. Co.:  
Boston Wood Snatch, 50%; Eclipse Steel, 75%; Hollow Steel, 50½-10%; Star Wire Rope, 50%; Tarbox Metal Snatch, 50%; Tarbox New Style Steel, 50½-10%; Wire Rope Snatch, 50%.  
Lace Patent Automatic Lock and Junior.....30%  
Stowell's Novelty, Mal. Iron.....50%  
Stowell's Loading.....50½-10%  
See also Machines, Hoisting.

## Boards, Stove—

Zinc, Crystal, &c.....40%  
Paper Embossed.....40½-10%

## Boards, Wash—

See Washboards.

## Bobs, Plumb—

Keuffel & Esser Co.....33½%

## Bolts—

Carriage, Machine, &c.—Common Carriage (cut thread)..... $\frac{1}{2}$  x 6 and smaller, 70½-10½%  
Larger and Longer, 60½-10½%  
Phila. Eagle, \$3.00 list May 24, '99.....40%

## Boil Ends.....65@65½%

Machine,  $\frac{1}{2}$  x 4 and smaller.....70½-10½%  
Machine, larger and longer.....60½-10½%

## Door and Shutter—

Cast Iron Barrel, Japanned, Round Brass Knob:  
Inch.....3 4 5 6 8  
Per doz.....\$1.30 .35 .45 .60 .80  
Cast Iron Spring Foot, Jap'd:  
Inch.....6 8 10  
Per doz.....\$1.20 1.50 2.25  
Cast Iron Chain Flat Japanned:  
Inch.....6 8 10  
Per doz.....\$1.00 1.40 1.65  
Cast Iron Flat Shutter, Jap'd, Brass Knobs:  
Inch.....6 8 10  
Per doz.....\$0.75 .35 1.25  
Wrought Barrel Jap'd.....80@80½%  
Barrel Bronzed.....60½-10%  
Spring.....70½-10@70½-10%  
Shutter.....50½-10@50½-10%  
Square Neck.....75@75½-10%  
Square.....70½-10@70½-10%  
Ives Patent Door.....50%

## Plow and Stove—

Plow.....65½-10@—%  
Stove.....85@85½-10%

## Tire—

Common Iron.....50½%  
Norway Iron.....80%  
American Screw Company:  
Norway Phila., list Oct. 16, '84.....80%  
Eagle Phila., list Oct. 16, '84.....82½%  
Bay State, list Dec. 28, '99.....80%  
Franklin Moore Co.:  
Norway Phila., list Oct. 16, '84.....80%  
Eagle Phila., list Oct. 16, '84.....82½%  
Eclipse, list Dec. 28, '99.....80%  
Mount Carmel Bolt Co.:  
Norway Phila., list Oct. 16, '84.....80%  
Eagle Phila., list Oct. 16, '84.....82½%  
Mount Carmel, list Dec. 28, '99.....80%  
Russell, Burdall & Ward Bolt & Nut Co.:  
Empire, list Dec. 28, '99.....80%  
Norway Phila., list Oct., '84.....80%  
Upon Nut Co.:  
Tire Bolts.....72½%

## Borers, Tap—

Borers Tap, Ring, with Handle:  
Inch.....1¼ 1½ 1¾ 2  
Per doz.....\$1.80 5.60 6.40 8.00  
Inch.....2¼ 2½ 2¾ 3  
Per doz.....\$5.65 11.50  
Enterprise Mfg. Co., No. 1, \$1.25; No. 2, \$1.75; No. 3, \$2.50 each.....25%

## Boxes, Mitre—

C. E. Jennings & Co.....30%  
Langdon, New Langdon and Langdon Improved, 20½-10%; Langdon Acme.....15½-10%  
Perfection.....40%  
Sealey.....40%  
Stanley B. & L. Co.: Nos. 240 to 460, 30%; Nos. 50 and 60.....35%

## Braces—

Common Ball, American, \$1.25@1.30  
Barber's.....50½-10@60½-10%  
Fray's Genuine Bradford's.....60%  
Fray's No. 70 to 120, 81 to 125, 207 to 414.....60%  
C. E. Jennings & Co.....50½%  
Mayhew's Hatchet.....60%  
Mayhew's Quick Action Hay Pat.....50%  
Millers Falls Drill Braces.....25½-10%  
P. S. & W. Co., Peck's Pat. 60@60½%  
Stanley B. & L. Co.:  
Stanley, 35%; Victor.....45%

## Brackets—

Wrought Steel.....80@80½%  
Griffin's Pressed Steel.....75½-10@80%  
Griffin's Folding Brackets.....70½-10%  
Stowell's Cast Steel, 75%; Sink.....50%  
Western W. G. Co., Wire.....60½-10%

## Bright Wire Goods—

See Wire and Wire Goods.

## Broilers—

Kilbourne Mfg. Co.....75½-20%  
Western W. G. Co.....80%  
Wire Goods Co.....75@75½-10%

## Buckets, Galvanized—

M'fgr's list, price per gross:  
Quart. 10 12 14  
Water, Reg.....\$5.35 28.00 32.00  
Water, Rev.....\$5.35 48.00 52.00  
Fire, Rd. Btm.....\$2.00 \$1.65 38.65  
Well.....\$7.35 \$1.35 \$5.35

## Bucks, Saw—

Hoosier..... $\frac{1}{2}$  gro. \$36.00

## Bull Rings—See Rings, Bull

## Butts—Brass—

Wrought, High List, Oct. 26, '06.....45%  
Cast Brass, Tiebout's.....40%

## Cast Iron—

Fast Joint, Broad.....40½-10@50%  
Fast Joint, Narrow.....40½-10@50%  
Loose Joint.....70½-10@75%  
Loose Pin.....70½-10@75%  
Mayer's Hinge.....70@70½%  
Parliament Butts.....70@70½%  
Wrought Steel.....70@70½%  
Reversible and Broad, 75%  
Light Reversible, Light  
Narrow.....75%  
Loose Joint, Narrow, L'h.  
Inside Blind, etc. 70½-10%  
Back Flaps, Table.....70%  
Chest.....70%

## Cages, Bird—

Hendryx Brass: Series 5000, 5000, 1100, 10%; 1200, 25%; 200, 300, 600, 800.....40%  
Hendryx Bronze: Series 700, 800, 40%  
Hendryx Enameled.....40%

**Calipers—See Compasses.****Calks, Toe and Heel—**

Blunt, 1 prong.....	per lb.	1.40
Sharp, 1 prong.....	per lb.	1.40
Burke's Blunt, 4 in. x 1/2 in.	per lb.	1.40
Gautier's Blunt, 4 in. x 1/2 in.	per lb.	1.40
Perkins' Blunt, 4 in. x 1/2 in.	per lb.	1.40

**Can Openers—****See Openers, Can.****Cans, Milk—**

Illinois Pattern.....	5	8	10 gal.
New York Pattern.....	1.35	1.85	2.05 each.
Baltimore Pattern.....	1.50	2.20	2.45 each.
Dubuque.....	1.50	2.20	2.45 each.
Dubuque.....	1.35	1.60	1.75 each.

**Cans, Oil—**

Buffalo Family Oil Cans:	3	5	10 gal.
	18.00	60.00	129.00 gro., net.

**Caps, Percussion—**

Eley's E. B.....	50	55
G. D.....	per M	34
F. L.....	per M	40
G. E.....	per M	40
Musket.....	per M	62

**Primers—**

Berdan Primers, \$2 per M.	206
Primer Shells and Bullets.	154
All other primers per M.	1.52

**Cartridges—**

Blank Cartridges:	
32 C. F.	10.65
38 C. F.	10.65
22 cal. Rim.	1.50
22 cal. Rim.	1.50
B. B. Caps, Con. Ball, Sigd.	1.90
B. B. Caps, Round Ball.	1.40
Central Fire.	25
Target and Sporting Rifle.	154
Primed Shells and Bullets.	154
Rim Fire, Sporting.	50
Rim Fire, Military.	154

**Casters—**

Bed .....	70	70	10
Plate .....	60	10	60
Philadelphia .....	75	75	10
Acme, Ball Bearing.....			33
Boss .....	70	10	
Boss Anti-Friction.....	70	10	
Gem (Roller Bearing).....			60
Martin's Patent (Phoenix).....			45
Standard Ball Bearing.....			45
Tucker's Patent low list.....			30
Yale (Double Wheel) low list.....			50

**Cattle Leaders—****See Leaders, Cattle.****Chain, Coil—**

5-16	1/4	5-16	3/8	7-16	1/2	9-16
\$2.77	6.17	5.02	4.57	4.37	4.27	4.22
5/8	3/4	7/8 to 1	1 1/4 to 1 1/2	inch.		
\$4.17	4.07	4.02	4.12			
In cask lots, deduct 25c.						
German Coil.....				60	10	10@70%

**Halter—**

Halter Chains.....	60	60	5
German Pattern Halter Chains.	1st July 23, '97.	60	10
Covert Mfg. Co.		35	5

**Cow Ties—****See Halters and Ties.****Trace, Wagon, &c.—**

Traces, Western Standard: 100 pr.	
6-6-3, Straight, with ring.	27.00
6-6-2, Straight, with ring.	28.00
6-6-2, Straight, with ring.	32.00
6-6-2, Straight, with ring.	37.00

NOTE.—Add 20 per pair for Hooks.  
Twist Traces: add per pair for Nos. 2 and 3, 2c; No. 1, 8c; No. 0, 4c to price of Straight Link.

**Eastern Standard Traces, Wag-****on Chain, &c.....****Miscellaneous—**

Gal. Pump Chain.....lb.	60	10	10
Covert Mfg. Co.:			
Breast, Halter, Heel, Rein, Stal- lion.....	40	10	10
Oueda Community:			
American Halter, Dog and Kennel Chains.....	35	2	40
Niagara Dog Leads and Kennel Chains.....	45	60	5
Wire Goods Co.:			
Dog Chain.....	70	10	10
Universal Dbl.-Jointed Chain.....	50	10	10

**Chain and Ribbon, Sash—**

Oneida Community:	
Steel Chain.....	60%
Pullman:	
Bronze Chain, 60%; Steel Chain	

Sash Chain Attachments, per set.	3.00
Aluminum Sash Ribbon, per 100	ft.
ft.....	1.25
Sash Ribbon Attachments, per set.	3.00

**Chalk—(From Jobbers.)**

Carpenters' Blue.....	50	55
Carpenters' Red.....	40	50
Carpenters' White.....	40	45

**Checks, Door—**

Bardsley's.....	45	10
Pullman, per gro.....	50	10
Russwin.....	35	10

**Chests, Tool—**

### Chests, Tool—

American Tool Chest Co.:

Boys' Chests, with Tools.....	50
Youths' Chests, with Tools.....	40
Gentlemen's Chests, with Tools.....	30
Farmers' Carpenters,' etc., Chests with Tools.....	30

**Machinists' and Pipe Fitters'**

Chests, Empty.....	50	10
Tool Cabinets.....	50	10
C. E. Jennings & Co.'s Machinists'		
Tool Chests.....	33 1/2	10 1/2

**Chisels—****Socket Framing and Firmer**

Standard List.....	75	@ 75c	5
Buck Bros.....	30		
Charles Buck Edge Tool Co.....	30		
C. E. Jennings & Co.:			
Socket Firmer No. 10.....	60		
Socket Framing No. 15.....	60		
Swan's.....	75		
L. & I. J. White Co.....	30	30	5

**Tanged—**

Tanged Firmers.....	40%
Buck Bros.....	30%
Charles Buck Edge Tool Co.....	30%
C. E. Jennings & Co. Nos. 191, 181.....	25%
L. & I. J. White Co.....	25&5%

**Cold—**

Cold Chisels, good quality.	15	15	4
Cold Chisels, fair quality.	11	11	4
Cold Chisels, ordinary.....	9	9	4

**Chucks—**

Almond Drill Chucks.....	35
Almond Turret Six-Tool Chuck.....	40
Beach Pat., each \$8.00.....	35&5
Empire.....	25
Blacksmiths.....	25
Jacob's Drill Chucks.....	35
Pratt's Positive Drive.....	25
Skinner Patent Chucks:	
Independent Lathe Chucks.....	40
Universal, Reversible Jaws.....	40
Combination, Reversible Jaws.....	40
Drill Chucks, New Model.....	25
Standard, 40&10; Skinner Pat.	
25%; Positive Drive.....	40
Planer Chucks.....	30
Face Plate Jaws.....	40
Standard Tool Co.:	
Improved Drill Chuck.....	45
Union Mfg. Co.:	
Combination, Nos. 1, 2, 3, 4, 5, 6,	
7, 8 and 17, 40%; No. 21.....	35
Scroll Combination, Nos. 82 and	
84.....	30
Geared Scroll, Nos. 33, 34 and 35, 30	
Independent Iron, Nos. 18 and 318, 35	
Independent Steel, No. 64.....	25
Union Drill, Nos. 000, 00, 100, 101,	
102, 103, 104.....	35
Union Gear Drill.....	25
Universal 11, 12, 16, 17, 13, 14, 15, 35	
Universal, No. 42.....	30
Iron Face Plate Jaws, Nos. 28, 30,	
48 and 50.....	35
Steel Face Plate Jaws, Nos. 70 and	
72.....	30
Westcott Patent Chucks:	
Lathe Chucks.....	50
Little Giant Auxiliary Drill.....	50
Little Giant Double Grip Drill.....	50
Little Giant Drill, Improved.....	50
Oneida Drill.....	50
Scroll Combination Lathe.....	50

**Clamps—**

Adjustable, Hammers'.....	20	20	5
Carriage Makers', P., S. & W. Co. ....	40	10	50
Resly, Parallel.....	33	10	10
Lineman's, Utica Drop Forge & Tool Co. ....	40	10	10
Wood Workers, Hammers'.....	40	10	10
Saw Clamps, see Vices, Saw Filers'.			

**Cleaners, Drain—**

Iwan's Champion, Adjustable.....	55	10	10
Iwan's Champion, Stationary.....	45	10	10

**Sidewalk—**

Star Shank, All Steel.....	30	10	10
W. & C. Shank, All Steel.....	30	10	10
7½ in., \$3.00; 8 in., \$3.25.			

**Cleavers, Butchers'—**

Foster Bros.....	30	10	10
Fayette R. Plumb.....	30	10	10
L. & I. J. White Co.....	30	10	10

**Clippers, Horse and****Sheep—**

Chicago Flexible Shaft Company:	
1902 Chicago Horse, each.....	\$10.75
20th Century Horse, each.....	\$5.00
Lightning Belt Horse, each.....	\$15.00
Chicago Belt Horse, each.....	\$20.00
Stewart's Enclosed Gear Horse, each.....	\$6.75
Stewart's Patent Sheep Shearing Machine, each.....	\$12.75
Stewart Enclosed Gear Shearing Machine, No. 8, each.....	\$9.75

**Clips, Axle—****Regular Styles, list July 1, '05.80****Cloth and Netting, Wire****—See Wire, &c.****Cocks, Brass—**

Hardware list:			
Plain Bibbs, Globe, Kerosene,			
Racking, Liquor, Bottling,			
&c.....	60	10	65%

**Coffee Mills—****See Mills, Coffee.****Collars, Dog—**

<b>Collars, Dog—</b>			
Nickel Chain, Walter B. Stevens &			
Son's list.....	40	10	10
Leather, Walter B. Stevens & Son's			
list.....	40	10	10

**Combs, Curry—**

Metal Stamping Co.....	40	10	10
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**Compasses, Dividers, &c.**

Compasses, Dividers, &c.			
Ordinary Goods.....	70	10	75%
Wm. Schollhorn Co.:			
Excelsior Dividers.....			55%

**Conductor Pipe—**

<b>Conductor Pipe,—</b>		
<b>L. C. L. to Dealers:</b>		
<b>Galvanized</b>		
<b>Galv.</b>	<b>Charcoal</b>	<b>Copper.</b>
<b>Steel.</b>	<b>Iron.</b>	<b>14, 16&amp;20 oz.</b>
<b>Eastern:</b>		
70%	50 & 75% 80	80%

**Central:**

65	10%	55	2½%	20	10%
Western and Southern:					
65	5%	50	7½%	20	7½%
So. Western:					

**So. Western**

50	25	50	20	5	10	10
<p>Terms, 60 days; 2% cash 10 days. Factory shipments generally delivered.</p> <p>See also Eave Troughs.</p>						

**Coolers, Water—**

Gal. each..	2	3	4	6	8
Labrador.....	\$1.20	\$1.50	\$1.80	\$2.10	\$2.70
Gal.....	3	4	5	6	8
Iceland, ea..	\$1.80	\$2.10	\$2.40	\$2.70	\$3.00
Gal.....	2	3	4	6	8
Galvanized, ea..	\$1.85	\$2.00	\$2.25	\$2.50	\$3.00
Galvanized, Lined, side handles,					
Gal.....	2	3	4	6	8
Each.....	\$1.95	\$2.15	\$2.40	\$3.30	\$4.15
White Enameled, 25%; Agate Lined..	25	10	10		

**Coopers' Tools—****See Tools, Coopers'.****Coppers' Soldering—**

Soldering Coppers, 3 lbs. to pair	
and heavier, 32@35¢; lighter	
than 3 lb. to pair.....	34@37¢

**Cord— Sash—**

Braided, Drab.....	10	10	5
Braided, White, Com., Nos. 8			
to 12, 25¢; No. 7, 25¢; No. 6,			
27 1/2¢			

**Cable Laid Italian, lb., No. 18.....**

Table Laid Italian, lb., No. 18..	37¢
Italian, lb., A, No. 18, 25¢; B, 22¢	
Common India.....lb., 11@11½¢	

**Cable Laid Russia.....**

India Hemp, Twisted.....	10	10	21
India Hemp, Twisted.....	10	10	21
Patent India, Twisted.....	10	10	17

**Anniston Cordage Co.:**

3 to 12, \$0.24; No. 7,	
\$0.24; No. 6, \$0.25; 10 doz., 50 ft.	
Orion, \$2.00; 50 ft., Columbia, \$0.85;	
50 ft., Vectors, \$1.00; 50 ft., 6-Thread,	
\$1.10; 60 ft., 3-Thread, \$0.95; 50 ft.,	
Manila, \$1.40; 60 ft., Jute, \$0.75.	

**Pearl Braided, cotton, No. 6.....**

27 1/2¢; No. 7, 25¢; Nos. 8 to 12, 25¢	
Eddystone, Braided, Nos. 8 to 12,	
26¢; 7, 25¢; 6, 27 1/2¢.	

**Harmony Cable Laid Italian, Nos. 7**



**Extractors, Lemon Juice**

—See Squeezers, Lemon.

**Fasteners, Blind—**Zimmerman's.....50¢10%  
Walling's.....40¢10%**Cord and Weight—**

Ives.....33%

**Faucets—**Cork Lined.....50¢50¢10%  
Metallic Key, Leather Lined.....60¢10¢70%Red Cedar.....40¢10¢50%  
Petroleum.....70¢10¢75%B. & L. B. Co.:  
Metal Key.....60¢10%  
Star.....50¢10%West Lock.....50¢10%  
John Sommer's Peerless Tin Key.....40%  
John Sommer's Boss Tin Key.....50%  
John Sommer's Victor Mtl. Key.....50¢10%  
John Sommer's Duplex Metal Key.....40%  
John Sommer's Diamond Lock.....40%  
John Sommer's K. L. Cork Lined.....50%  
John Sommer's Reliable Cork Lined.....50¢10%John Sommer's Chicago Cork Lined.....50%  
John Sommer's O. K. Cork Lined.....50%  
John Sommer's No Brand, Cedar.....40%  
John Sommer's Perfection, Cedar.....40%  
McKenna, Brass:  
Burglar Proof, N. P.....25%  
Improved, 1/2 and 1/4 inch.....25%Self Measuring:  
Enterprise, 1/2 doz. \$36.00.....40¢10%  
Lane's, 1/2 doz. \$36.00.....40¢10%  
National Measuring, 1/2 doz. \$36.00.....40¢10%**Felloe Plates—**

See Plates, Felloe.

**Files— Domestic—**

List Nov. 1, 1899.

Best Brands.....70¢10¢75¢10%  
Standard Brands.....75¢10¢75¢10%  
Lower Grade.....75¢10¢10¢80¢10%**Imported—**

Stub's Tapers, Stub's list, July 24, '97.....53 1-3¢40%

**Fixtures, Fire Door—**Richards Mfg. Co.:  
Universal, No. 103; Special, No. 104.....\$3.75  
Fusible Links, No. 96.....50%  
Expansion Bolts, No. 107.....60¢10%**Grindstone—**Net Prices:  
15 17 19 21  
Per doz.....\$3.25 3.75 4.25 4.75  
P. S. & W. Co.....30¢10%  
Reading Hardware Co.....60%  
Stowell's Giant Grindstone Hanger.....\$2 doz. \$6.00  
Stowell's Grindstone Fixtures, Extra Heavy, 40¢10%; Light.....50%**Fodder Squeezers—**

See Compressors.

**Forks—**

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Iowa Dig-Ezy Potato.....60¢10%  
Victor, Hay.....60¢15¢25%  
Victor, Manure.....66%  
Victor, Header.....66%  
Champion, Hay.....66%  
Champion, Header.....66%  
Champion, Manure.....60¢15¢25%  
Columbia, Hay.....60¢20%  
Columbia, Header.....70¢12%  
Columbia, Spading.....70¢12%  
Hawkeye Wood Barley.....40%  
W. & C. Potato Digger.....60¢10%  
Acme Hay.....60¢20%  
Acme Manure, 4 tine.....60¢10¢5%  
Dakota Header.....60¢20%  
Jackson Steel Barley.....60¢20%  
Kansas Header.....65%  
W. & C. Favorite Wood Barley.....40%  
Plated—See Spoons.**Frames— Saw—**White, S'g't Bar, per doz. 75¢80¢  
Red, S'g't Bar, per doz. \$1.00¢1.25  
Red, Dbl. Brace, per doz. \$1.40¢1.59**Freezers, Ice Cream—**Qt. .... 1 2 3 4 6  
Each ..... \$1.30 \$1.60 \$1.90 \$2.20 \$2.50**Fruit and Jelly Presses—**

See Presses, Fruit and Jelly.

**Fry Pans—See Pans, Fry.****Fuse— Per 1000 Feet.**Hemp.....\$2.75  
Cotton.....3.20  
Waterproof Sgl. Taped.....3.65  
Waterproof Dbl. Taped.....4.40  
Waterproof Tpl. Taped.....5.15**Gates, Molasses and Oil—**

Stebbins' Pattern.....80¢10%

**Gauges—**Marking, Mortise, &c. 50¢50¢10%  
Chapin-Stephens Co.:  
Marking, Mortise, &c. 50¢50¢10%  
Diamon's Marking, Mortise, &c. 67%  
Stanley R. & L. Co.'s Butt and Rabbit Gauge.....35%  
Marking and Mortise.....55%  
Wire, Brown & Sharpe's.....33%  
Wire, Morse's.....25%  
Wire, P. S. & W. Co.....30%**Gimlets— Single Cut—**Numbered assortments, per gro.  
Nail, Metal, No. 1, \$2.00; 2, \$2.20  
Spike, Metal, No. 1, \$4.00; 2, \$4.40

Nail, Wood Handled, No. 1, \$2.30; 2, \$2.60

Spike, Wood Handled, No. 1, \$4.30; 2, \$4.60

**Glass, American Window**

See Trade Report.

**Glasses, Level—**

Chapin-Stephens Co.....65¢65¢10%

**Glue, Liquid Fish—**Bottles or Cans, with Brush.....25¢10¢50%  
International Glue Co. (Martin's).....40%**Grease, Axle—**Common Grade.....gro. \$4.50¢6.00  
Dixon's Everlasting, 10-lb pails, ea. \$5¢; in boxes, 1 doz., 1 lb. \$1.20; 2 lb. \$2.00  
Helmet Hard Oil.....25%**Griddles, Soapstone—**

Pike Mfg. Co.....33%¢33%¢10%

**Grindstones—**Pike Mfg. Co.:  
Improved Family Grindstones, 1/2 inch, 1/2 doz., \$2.00.....33%  
Royal Mfg. Co.:  
Alumund Grinding Machines, each, Nos. 01, \$1.75; 1A, \$2.50; 10, \$5.00.....30%  
Alumund Sickle Grinders, each, Nos. 20A, \$6.00; 20A Combined, \$6.50.....30%  
Alumund Disc Grinders, each, \$2.50.....30%**Grips, Nipple—**

Perfect Nipple Grips.....40¢10¢2%

**Halters and Ties—**Coco Ties.....60¢45¢60¢10%  
Covert Mfg. Co.:  
Web.....30¢2%  
Jute Rope.....35%  
Sisal Rope.....45%  
Cotton Rope.....45%  
Hemp Rope.....45%  
Oneida Community:  
Am. Coll and Halters.....40¢40¢5%  
Am. Cow Ties.....45¢50%  
Niagara Coll and Halters.....45¢50%  
Niagara Cow Ties.....45¢50%10¢5%**Hammers—****Handled Hammers—**Heller's Machinists'.....55¢10¢55¢10¢5%  
Heller's Farmers'.....40¢50¢40¢5%  
Magnetic Tack, Nos. 1, 2, 3, \$1.25, \$1.50, \$1.75.....50%  
Peck, Stow & Wilcox, Steel.....50%  
Fayette R. Plumb:  
Plumb, A. E. Nail.....40¢2%¢40¢12%  
Engineers' and B. S. Hand.....50¢12%¢60%  
Machinists' Hammers.....50¢15¢60%  
Riveting and Tappers.....40¢2%¢40¢12%**Heavy Hammers and Sledges—**Under 3 lb., per lb., 50¢. 30¢5¢@. %  
3 to 5 lb., per lb., 40¢. 80¢5¢@. %  
Over 5 lb., per lb., 30¢. 80¢10¢5¢@. %

Wilkinson's Smiths'.....lb. 9¢@10¢

**Handles—****Agricultural Tool Handles**1/2, Pick, &c.....60¢10¢60¢10¢5%  
Hoe, Rake, &c.....40¢45¢5%  
Fork, Shovel, Spade, &c.:  
Long Handles.....40¢45¢5%  
D Handles.....40%**Cross-Cut Saw Handles—**Atkins'.....40%  
Champion.....50%  
Disston's.....50%**Mechanics' Tool Handles—**Auger, assorted.....gro. \$2.50¢\$3.00  
Brad Axl.....gro. \$1.65¢\$1.75  
Chisel Handles, Ass'd, per gro.:  
Tanged Firmer, Apple, \$2.40¢  
\$2.65; Hickory.....\$2.15¢\$2.40  
Socket Firming, Apple, \$1.75¢  
\$1.95; Hickory.....\$1.45¢\$1.60  
Socket Framing, Hickory.....\$1.60¢\$1.75  
File, assorted.....gro. \$1.30¢\$1.40  
Hammer, Hatchet, &c.....60¢10¢60¢10¢5%Hand Saw, Varnished, doz. 80¢85¢; Not Varnished.....65¢75¢  
Plane Handles:  
Jack, doz. 30¢; Jack, Bolted, 75¢  
Fore, doz. 45¢; Fore, Bolted, 90¢  
Chapin-Stephens Co.:  
Carving Tool.....40¢40¢10%  
Chisel.....55¢65¢10%  
File and Axl.....65¢65¢10%  
Saw and Plane.....40¢40¢10%  
Screw Driver.....40¢40¢10%  
Millers Falls Adj. and Ratchet Auger Handles.....20¢10%  
Nicholson Simplicity File Handle.....\$1 gro. \$0.85¢\$1.50**Hangers—**NOTE.—Barn Door Hangers are generally quoted per pair, without track, and Parlor Door Hangers per double set with track, &c.  
Allith Mfg. Co.:  
Reliable, No. 1; Allith, No. 3; Allith Adjustable, No. 6; Reliable Parlor Door.....50%Chicago Spring Butt Co.:  
Friction.....25%  
Oscillating.....25%  
Big Twin.....25%  
Chisholm & Moore Mfg. Co.:  
Baggage Car Door.....50%  
Elevator.....30%  
Railroad.....50%  
Cronk & Carrier Mfg. Co.:  
Loose Axle.....60¢10%  
Roller Bearing.....70%  
Griffin Mfg. Co.:  
Solid Axle, No. 10, \$12.00.....70%  
Roller Bearing, No. 11, \$15.00, 70%  
Roller Bearing, Ex. Hy., No. 22, \$18.00.....70%  
Hinged Hangers, \$16.00.....60¢10%  
Lane Bros. Co.:  
Parlor Ball Bearing, \$1.00; Standard, \$3.15; No. 105, \$2.85; New Model, \$2.80; New Champion, \$2.25  
Barn Door, Standard.....60¢5%  
Hinged.....net \$6.08  
Covered.....60¢2%  
Special.....70¢5%  
Lawrence Bros.:  
Advance and Sterling.....60¢2%  
Cleveland and Peerless.....70¢7%  
Clippard, No. 75.....60¢5%  
Crown.....60¢2%  
Cyclone Tandem.....net \$7.50  
Easy Parlor Door, Dbl. Sets, \$2.50; Single Sets, \$1.25.....60%  
Giant.....70¢7%  
Hummer.....70¢7%  
New Cyclone, Flexible, \$16.00, 60%  
New York.....60¢2%  
McKinney Mfg. Co.:  
No. 1, Special, \$15.....60¢10%  
No. 2, Standard, \$18.....60¢10%  
Hinged Hangers, \$16.....50%  
Meyers' Stayon Hangers.....60¢5%  
Richards Mfg. Co.:  
Hangers, Nos. 47, 48, 147, 217, 60¢5%  
Pioneer Wood Track, No. 3, \$2.25  
Roller B'r'g St'l Track No. 12, \$2.20  
Roller B'r'g St'l Track No. 13, \$2.50  
Roller B'r'g, Nos. 39, 41, 43, 70¢7%  
Hero, Adj. Track No. 19, \$2.40  
Adjustable Track Tandem Trolley Track No. 16.....50¢10%  
Seal, Steel Track No. 8.....\$2.25  
Auto Adj. Track No. 22.....50¢5%  
Trolley B. D. No. 17, \$1.25; F. D. No. 121, \$2.25; No. 150, \$2.50  
Safety Underwriters F. D. No. 101.....50%  
Tandem No. 41, 2% and 3 60¢10%  
P. lco. Adjustable Track No. 122.....50¢10%  
Royal, Adjustable Track No. 122.....50¢10%  
Ives' Wood Track No. 1.....\$2.25  
Trolley H. D. No. 20.....50¢10%  
Trolley B. D. No. 24, \$1.30; No. 27, \$1.40; No. 28, \$1.60  
Roller Bearings, Nos. 37, 38, 39, 41, 43, 44, Sizes 1 and 2, 70¢7%  
Anti-friction, No. 42; No. 44, sizes 2% and 3.....60%  
Hinged Tandem No. 45.....60¢5%  
Folding Door B. B. Swivel No. 125.....40%  
Stowell Mfg. & Foundry Co.:  
Acme Parlor Ball Bearing.....30%  
Ajax Hinge Door.....60%  
Apex Parlor Door.....50¢10%  
Atlas.....60%  
Baggage Car Door.....50%  
Climax Anti-Friction.....40%  
Elevator.....50%  
Express.....50%  
Lundy Parlor Door.....50%  
Matchless.....60%  
Nansen.....70%  
Parlor Door, 50¢10%; Railroad, \$0.40  
Steel, Nos. 300, 404, 500.....50%  
Underwriters' Fire Door.....40%  
Wild West Warehouse Door.....50%  
Wilburn, No. 0, net, 1/2 doz. \$9.00  
Zenith for Wood Track.....50%  
A. L. Sweet Iron Works:  
Check Back, 7% Eagle.....70%  
Climax Anti-Friction.....50¢10%  
Hylo Hinge, New Perfection, Pilot, Pilot Hinge.....60%  
Rider Wooster.....65%  
Western Pattern.....70%  
Taylor & Boggs F'y Co.'s Kidder's Roller Bearing, 50¢15¢10¢5%Chicago Spring Butt Co.:  
Friction.....25%  
Oscillating.....25%  
Big Twin.....25%  
Chisholm & Moore Mfg. Co.:  
Baggage Car Door.....50%  
Elevator.....30%  
Railroad.....50%  
Cronk & Carrier Mfg. Co.:  
Loose Axle.....60¢10%  
Roller Bearing.....70%  
Griffin Mfg. Co.:  
Solid Axle, No. 10, \$12.00.....70%  
Roller Bearing, No. 11, \$15.00, 70%  
Roller Bearing, Ex. Hy., No. 22, \$18.00.....70%  
Hinged Hangers, \$16.00.....60¢10%  
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Hinged.....net \$6.08  
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Special.....70¢5%  
Lawrence Bros.:  
Advance and Sterling.....60¢2%  
Cleveland and Peerless.....70¢7%  
Clippard, No. 75.....60¢5%  
Crown.....60¢2%  
Cyclone Tandem.....net \$7.50  
Easy Parlor Door, Dbl. Sets, \$2.50; Single Sets, \$1.25.....60%  
Giant.....70¢7%  
Hummer.....70¢7%  
New Cyclone, Flexible, \$16.00, 60%  
New York.....60¢2%  
McKinney Mfg. Co.:  
No. 1, Special, \$15.....60¢10%  
No. 2, Standard, \$18.....60¢10%  
Hinged Hangers, \$16.....50%  
Meyers' Stayon Hangers.....60¢5%  
Richards Mfg. Co.:  
Hangers, Nos. 47, 48, 147, 217, 60¢5%  
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Roller B'r'g St'l Track No. 13, \$2.50  
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Hinged Tandem No. 45.....60¢5%  
Folding Door B. B. Swivel No. 125.....40%  
Stowell Mfg. & Foundry Co.:  
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Ajax Hinge Door.....60%  
Apex Parlor Door.....50¢10%  
Atlas.....60%  
Baggage Car Door.....50%  
Climax Anti-Friction.....40%  
Elevator.....50%  
Express.....50%  
Lundy Parlor Door.....50%  
Matchless.....60%  
Nansen.....70%  
Parlor Door, 50¢10%; Railroad, \$0.40  
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Wild West Warehouse Door.....50%  
Wilburn, No. 0, net, 1/2 doz. \$9.00  
Zenith for Wood Track.....50%  
A. L. Sweet Iron Works:  
Check Back, 7% Eagle.....70%  
Climax Anti-Friction.....50¢10%  
Hylo Hinge, New Perfection, Pilot, Pilot Hinge.....60%  
Rider Wooster.....65%  
Western Pattern.....70%  
Taylor & Boggs F'y Co.'s Kidder's Roller Bearing, 50¢15¢10¢5%Chicago Spring Butt Co.:  
Friction.....25%  
Oscillating.....25%  
Big Twin.....25%  
Chisholm & Moore Mfg. Co.:  
Baggage Car Door.....50%  
Elevator.....30%  
Railroad.....50%  
Cronk & Carrier Mfg. Co.:  
Loose Axle.....60¢10%  
Roller Bearing.....70%  
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Crown.....60¢2%  
Cyclone Tandem.....net \$7.50  
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Folding Door B. B. Swivel No. 125.....40%  
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Ajax Hinge Door.....60%  
Apex Parlor Door.....50¢10%  
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Baggage Car Door.....50%  
Climax Anti-Friction.....40%  
Elevator.....50%  
Express.....50%  
Lundy Parlor Door.....50%  
Matchless.....60%  
Nansen.....70%  
Parlor Door, 50¢10%; Railroad, \$0.40  
Steel, Nos. 300, 404, 500.....50%  
Underwriters' Fire Door.....40%  
Wild West Warehouse Door.....50%  
Wilburn, No. 0, net, 1/2 doz. \$9.00  
Zenith for Wood Track.....50%  
A. L. Sweet Iron Works:  
Check Back, 7% Eagle.....70%  
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Western Pattern.....70%  
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Oscillating.....25%  
Big Twin.....25%  
Chisholm & Moore Mfg. Co.:  
Baggage Car Door.....50%  
Elevator.....30%  
Railroad.....50%  
Cronk & Carrier Mfg. Co.:  
Loose Axle.....60¢10%  
Roller Bearing.....70%  
Griffin Mfg. Co.:  
Solid Axle, No. 10, \$12.00.....70%  
Roller Bearing, No. 11, \$15.00, 70%  
Roller Bearing, Ex. Hy., No. 22, \$18.00.....70%  
Hinged Hangers, \$16.00.....60¢10%  
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Crown.....60¢2%  
Cyclone Tandem.....net \$7.50  
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Atlas.....60%  
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Climax Anti-Friction.....40%  
Elevator.....50%  
Express.....50%  
Lundy Parlor Door.....50%  
Matchless.....60%  
Nansen.....70%  
Parlor Door, 50¢10%; Railroad, \$0.40  
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Wilburn, No. 0, net, 1/2 doz. \$9.00  
Zenith for Wood Track.....50%  
A. L. Sweet Iron Works:  
Check Back, 7% Eagle.....70%  
Climax Anti-Friction.....50¢10%  
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Western Pattern.....70%  
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Elevator.....30%  
Railroad.....50%  
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Roller Bearing.....70%  
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Cyclone Tandem.....net \$7.50  
Easy Parlor Door, Dbl. Sets, \$2.50; Single Sets, \$1.25.....60%  
Giant.....70¢7%  
Hummer.....70¢7%  
New Cyclone, Flexible, \$16.00, 60%  
New York.....60¢2%  
McKinney Mfg. Co.:  
No. 1, Special, \$15.....60¢10%  
No. 2, Standard, \$18.....60¢10%  
Hinged Hangers, \$16.....50%  
Meyers' Stayon Hangers.....60¢5%  
Richards Mfg. Co.:  
Hangers, Nos. 47, 48, 147, 217, 60¢5%  
Pioneer Wood Track, No. 3, \$2.25  
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Roller B'r'g, Nos. 39, 41, 43, 70¢7%  
Hero, Adj. Track No. 19, \$2.40  
Adjustable Track Tandem Trolley Track No. 16.....50¢10%  
Seal, Steel Track No. 8

**Hitchers, Stall—**

Covert Mfg. Co., Stall Hitchers, 30&amp;2%

**Hods—Coal—**

Mfg's list, price per gross.  
 Inch ..... 15 17 18  
 Gate Open. \$35 \$39 \$42 \$46  
 Jap. Open. 26 28 31 35  
 Gate Funnel. 43 48 52 56  
 Jap. Funnel. 33 36 39 43

**Masons' Etc.—**

Cleveland Wire Spring Co.:  
 Steel Brick, No. 162.....each \$1.05  
 Steel Mortar, No. 158.....each \$1.35

**Hoes—Eye—**

Scovill and Oval Pattern.....60&amp;100&amp;60&amp;10&amp;10%

Grub, list Feb. 23, 1899.....70&amp;100&amp;75&amp;10%

D. &amp; H. Scovill.....30%

**Handled—**

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Cronk's Weeding, No. 1, \$2.75; No. 2, \$2.50

Star Double Bit.....\$2.30

Ft. Madison Cotton Hoe.....70&amp;100&amp;10%

Ft. Madison Crescent Cultivator Hoe.....70&amp;100&amp;10%

Ft. Madison Mattock Hoe.....70&amp;100&amp;10%

Regular Weight.....\$ doz. 66%

Junior Size.....\$ doz. 50%

Ft. Madison Sprouting Hoe.....\$ doz. 50%

Ft. Madison Dixie Tobacco Hoe.....75&amp;100&amp;75%

Kretzinger's Cut Easy.....70&amp;100&amp;70%

Warren Hoe.....45&amp;100&amp;45%

W. &amp; C. Ivanhoe.....75&amp;100&amp;75%

B. B. 6 in. Cultivator Hoe.....\$3.35

B. B. 6 in. Hoe.....\$3.35

Acme Weeding.....\$ doz. net, \$4.35

W. &amp; C. Lining Shuffler Hoe.....\$ doz. \$4.85

**Hoisting Apparatus—**

See Machines, Hoisting.

**Holders—Bit—**

Angular, \$ doz. \$24.00.....45&amp;10%

**Door—**

Bardsley's, Iron, 40%; Brass and Bronze.....33%

Empire.....50%

Pullman.....35%

Superior.....33%

**File and Tool—**

Nicholson File Holders and File Handles.....33&amp;40%

**Fruit Jar—**

Triumph Fruit Jar Holder, \$ gross, \$10.80; \$ doz. \$1.25

**Trace and Rein—**

Fernald Double Trace Holder, \$ doz. pairs.....\$1.25

Dash Rein Holder, \$ doz. pairs.....\$1.25

**Hones—Razor—**

Pike Mfg. Co., Belgian, German and Swaty.....90%

**Hooks—Cast Iron—**

Bird Cage, Reading.....40%

Clothes Line, Reading List.....40%

Clothes Line, Stowell's.....70%

Coat and Hat, Reading.....45&amp;20%

Coat and Hat, Stowell's.....70%

Coat and Hat, Wrightsville.....65%

Harness, Reading List.....40%

Harness, Stowell's.....50%

School House, Stowell's.....70%

**Wire—**

Belt.....80%

Wire C. &amp; H. Hooks.....75&amp;75&amp;10%

Columbian Hdw. Co., Gem.....70&amp;5%

Parker Wire Goods Co., King.....70&amp;10%

Western W. G. Co. Molding.....75%

Wire Goods Co.:  
 Acme, 60&10%; Chief, 70%; Crown,  
 75%; Czar, 65%; V. Brace, 75%;  
 Czar Harness, 50&10%.**Wrought Iron—**

Box, 6 in., per doz., \$1.60; 8 in., \$1.25; 10 in., \$2.50.

Cotton.....\$ doz. \$1.05&amp;\$1.25

Wrought Staples, Hooks, &c.—  
 See Wrought Goods**Miscellaneous—**

Hooks, Bench, see Staps, Bench.

Bush, Light, doz. \$4.75; Medium, \$5.35; Heavy, \$6.25

Grass, best, all sizes, per doz. \$1.60

Grass, common grades, all sizes, per doz. \$1.39

Whiffletree.....lb. 5%&amp;4%

Hooks and Eyes:  
 Brass.....60&5&60&10&5%  
 Malleable Iron.....70&70&10%

Covert Mfg. Co. Gate and Seattle Hooks.....40%

Ft. Madison Cut-Easy Corn Hooks.....\$ doz. \$3.25 net

Turner &amp; Stanton Co. Cup and Shoulder.....80&amp;10&amp;10%

Bench Hooks—See Knives, Corn.

**Horse Nails—**

See Nails, Horse.

**Horseshoes—**

See Shoes, Horses.

**Hose, Rubber—**

Garden Hose, 1/2-in.:

Competition.....ft. 5 @ 6¢

3-ply Guaranteed, ft. 8 @ 9¢

4-ply Guaranteed, ft. 10 @ 11¢

Cotton Garden, 1/2-in., coupled:  
 Low Grade.....ft. 8 @ 9¢  
 Fair Quality.....ft. 10 @ 11¢**Irons—Sad—**

From 1 to 10.....lb. 3 @ 3 1/2¢

R. B. Sad Irons.....lb. 3 1/2 @ 3 1/4¢

Mrs. Potts, cents per set:  
 Nos. 80 53 60 65  
 Jap'd Tops.....80 77 90 88  
 Tin'd Tops.....85 82 95 92  
 New England Pressing, lb. 3 1/2 @ 1 1/4¢

Pinking Irons.....dos. 60¢

**Irons, Soldering**

See Copiers.

**Jacks, Wagon—**

Covert Mfg. Co.:  
 Auto Screw.....30&2%; Steel, 45%  
 Lockport.....50%  
 Lane's Steel.....30&10&2%  
 Richards' Tiger Steel, No. 130.....50&10%  
 Smith & Hemenway Co.'s.....25%

**Kettles—**

Brass, Spun, Plain.....20&25%  
 Enamelled and Cast Iron—See Ware, Hollow.

**Knives—**

Butcher, Kitchen, &amp;c.—

Foster Bros' Butcher, &amp;c.....30%

Wilkinson Shear &amp; Cutlery Co.....60%

**Corn—**

Wilkinson Shear &amp; Cutlery Co.

Wilcutt Brand Knives and Hooks, 60%

Wilmington Acme.....\$ doz. \$2.65

Dent, \$2.75; Adj. Serrated, \$2.20

Serrated, \$2.10; Yankee No. 1, \$1.50

Yankee No. 2, \$1.15

**Drawing—**

Standard List.....75&amp;50&amp;75&amp;10%

C. E. Jennings &amp; Co. Nos. 45, 46, 60

Jennings &amp; Griffin, Nos. 41, 42.....75%

Swan's.....15%

Watrous.....16%

L. &amp; J. J. White.....20&amp;5&amp;25%

**Hay and Straw—**

Serrated Edge, per doz. \$5.75&amp;6.00

Iwan's Sickle Edge.....\$ doz. \$9.50

Iwan's Serrated.....\$ doz. \$10.00

**Mincing—**

Buffalo.....\$ gro. \$13.00

**Miscellaneous—**

Farriers'.....\$ doz. \$3.00&amp;\$3.25

Wostenholm's.....\$ doz. \$3.00&amp;\$3.25

**Knobs—**

Base, 2 1/2-in. Birch, or Maple,

Rubber Tip.....\$ gro. \$1.25&amp;\$1.40

Carriage, Jap., all sizes.....\$ gro. 40&amp;45¢

Door, Mineral.....\$ doz. 65&amp;70¢

Door, Por. Jap'd.....\$ doz. 70&amp;75¢

Door, Por. Nickel.....\$ doz. 85&amp;95¢

Bardsley's Wood Door, Shutters, &amp;c. 15%

**Lacing, Leather—**

See Belting, Leather—

**Ladders, Store, &c.—**

Allith Mfg. Co., Reliable.....50%

Lane's Store.....25%

Myers' Noiseless Store Ladders.....50%

Richards Mfg. Co.:  
 Improved Noiseless, No. 112.....50%

Climax Shelf, No. 113.....50%

Trolley, No. 109.....50%

**Ladies, Melting—**

L. &amp; G. Mfg. Co. (low list).....25%

P. S. &amp; W.....40&amp;10%

Reading.....60%

**Lanterns—Tubular—**

Regular Tubular, No. 0.....

Lift Tubular, No. 0.....\$ doz. \$4.25&amp;\$4.50

Hinge Tubular, No. 0.....\$ doz. \$4.75&amp;\$5.00

Other Styles.....\$ doz. 40&amp;45¢

**Bull's Eye Police—**

No. 1, 2 1/2-in. ....\$2.75&amp;\$3.00

No. 2, 3-in. ....\$3.00&amp;\$3.25

**Lasts and Stands, Shoe—**

Stowell's Atlas, Malleable Iron.....50%

Stowell's Badger, Cast Iron.....50%

**Latches—Thumb—**

Roggin's Latches, with screw.....\$ doz. 35&amp;40¢

**Door—**

Allith Mfg. Co., Automatic, No. 400.....\$ doz. \$4.00

Cronk &amp; Carrier Mfg. Co., No. 101.....\$ doz. \$2.30

Cronk &amp; Carrier Mfg. Co., Latch, Hasp and Staples.....50%

Richards' Bull Dog, Heavy, No. 125.....50&amp;5%

Richards' Trump, No. 127.....\$1.50

Stowell's Steel.....50%

**Leaders, Cattle—**

Small.....\$ doz. 50¢; large, 60¢

Covert Mfg. Co.:  
 Cotton, 45%; Hemp, 45%; Jute, 35%;  
 Sisal, 20%.**Lifters, Transom—**

R. &amp; E. Horse.....10%

**Lines—**

Wire Clothes, Nos. 18 19 20

100 feet.....\$2.25 2.00 1.75

75 feet.....\$1.75 1.50 1.10

Anniston Waterproof Clothes, 50 ft., \$ gro. \$25.00; Gilt Edge \$25.00; Air Line, \$23.00; Acme, \$18.00; Alabama, \$17.00; Empire, \$16.00; Advance, \$14.00; Eclipse, \$13.50; Chicago, \$11.50; Standard, \$10.50; Columbia, \$9.50; Allaton, \$13.50; Calhoun, \$12.00.

Samson Cordage Works:  
 Solid Braided Chalk, Nos. 0 to 3.....40%

Solid Braided Mason, No. 20.....20%

Silver Lake Braided Chalk, No. 0, \$6.00; No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50.....\$ gro. 20%

Masons' Lines, Shade Cord, &c.:  
 White Cotton, No. 3 1/2, \$1.50; No. 4, \$2.00; No. 4 1/2, \$2.50; Colors, No. 3 1/2, \$1.75; No. 4, \$2.25; No. 4 1/2, \$2.75.

Linen, No. 3 1/2, \$2.50; No. 4, \$3.50; No. 4 1/2, \$4.50.....\$ doz. 20%

Tent and Awning Lines: No. 5, White Cotton, \$7.50; Drab Cotton, \$8.50.....\$ doz. 20%

Clothes Lines, White Cotton: 50 ft., \$2.75; 60 ft., \$3.25; 70 ft., \$3.75; 75 ft., \$4.00; 80 ft., \$4.25; 90 ft., \$4.75; 120 ft., \$5.25.....\$ doz. 20%

**Locks—Cabinet—**

Cabinet Locks.....33 1/2%

**Door Locks, Latches, &c.—**

NOTE.—Net Prices are very often made on these goods.

Reading Hardware Co.....40%

R. &amp; E. Mfg. Co.....10%

**Elevator—**

Stowell's.....50%

**Padlocks—**

R. &amp; E. Mfg. Co. Wrought Steel and Brass.....75&amp;10%

**Sash, &c.—**Ives' Patent:  
 Bronze and Brass, 60%; Crescent, 40&20%; Iron, 60%; Window Ventilating, 55%; Robinson Pat. Ventilating Sash Lock, 33 1/2%; Wrought Steel, 55%.

Pullman Patent Ventilating Lock.....35%

Reading.....40%

**Machines—Boring—**

Com. Up'r't, without Augers, \$2.00&amp;2.25

Com. Ang'l'r, without Augers, \$2.25&amp;2.50

Swan's Improved.....40&amp;10%

Jennings, Nos. 1 and 4.....33 1/2%

Miller's Falls.....5.75

Snell's, Upright, \$2.65; Angular, \$2.90

**Corking—**

Reisinger Invinible Hand Power.....\$ doz. \$48.00

**Fence—**

Williams' Fence Machines.....each, \$5.50

**Hoisting—**

Moore's Anti-Friction Chain Hoist, 30%

Moore's Hand Hoist, with Lock Brake.....20%

Moore's Cyclone High Speed Chain Hoist.....25%

**Ice Cutting—**

Chandler's Washing.....12 1/2%

Boss Washing Machine Co.: Per doz. Boss No. 1.....\$57.00

Boss Rotary.....\$57.00

Champion Rotary Banner No. 1.....\$57.00

Standard Champion No. 1.....\$50.00

Standard Perfection.....\$37.00

Cincinnati Square Western.....\$33.00

Uneda American, Round.....\$33.60

**Mallets—**

Hickory.....45&amp;50%

Lignumvitae.....45&amp;50%

Timmer's Hickory and Applewood.....\$ doz. 45&amp;50%

**Mangers, Stable—**

Sweet Iron Works.....50%

**Mashers, Vegetable—**

Western, W. G. Co., Potato.....60&amp;10%

**Mats, Door—**

Elastic Steel (W. G. Co.), new list.....50%

Keystone Wire Matting Co.:  
 Keystone.....50%  
 Ideal.....50%**Mattocks—**

See Picks and Mattocks.

**Milk Cans—See Cans, Milk.****Mills, Coffee, &c.—**

Enterprise Mfg. Co.....20&amp;25%

National list Jan. 1, 1902.....30%

Parker's Columbia &amp; Victoria.....50&amp;10&amp;60%

Parker's Box and Slide.....50&amp;10&amp;60%

Swift, Lane Bros. Co.....30%

**Motors Water—**

Divine's Red Devil.....30%

**Mowers, Lawn—**

NOTE.—Net prices are generally quoted Cheapest.....all sizes, \$1.85&amp;2.00

Cheap.....all sizes, \$2.00&amp;2.50

Better Grade.....all sizes, \$2.50&amp;4.50

12 14 16 18-in. ....\$4.50 4.75 5.00 5.25

High Grade.....\$4.50 4.75 5.00 5.25

Continental.....60&amp;5%

Great American.....70%

Great American Ball B'r'g, new list.....70%

Quaker City.....70%

Pennsylvania.....60&amp;5%

Pennsylvania Golf.....50%

Pennsylvania Horse.....33 1/2&amp;5%

Pennsylvania Pony.....40&amp;5%

Granite State:  
 Style A, Low Wheel.....70&10&10%

Style B, Low Wheel.....70&amp;10%

Style C, High Wheel, spl. disc't.....70&amp;10%

Style



**Potato—**  
Saratoga ..... doz. \$7.00  
White Mountain ..... doz. \$6.00

**Picks and Mattocks—**  
List, Feb. 23, 1899 ..... 70¢@10¢/75¢  
Cronk's Handled Garden Mattock,  
doz., No. 2, \$2.60; No. 3, \$6.40.

**Pinking Irons—**  
See Irons, Pinking.  
**Pins, Escutcheon—**  
Brass ..... 50¢@10¢/60¢  
Iron, list Nov. 11, '85 ..... 60¢@60¢/10¢

**Pipe, Cast Iron Soil—**  
Carload lots.  
Standard, 2-6 in. 50¢@10¢/50¢@10¢/5¢  
Extra Heavy, 2-6 in. .... 65¢@10¢  
Fittings ..... 70¢@10¢/70¢@10¢/5¢

**Pipe, Merchant—**  
Consumers, Carloads.  
Steel. Iron.  
Blk. Galv. Blk. Galv.  
1/2 & 1/4 in. .... 66 50 59¢@5 43¢@5  
3/8 in. .... 68 53 61¢@5 43¢@5  
1/2 in. .... 70 58 63¢@5 51¢@5  
3/4 to 6 in. .... 74 63 68¢@5 58¢@5  
7 to 12 in. .... 69 54 63¢@5 48¢@5

**Pipe, Vitrified Sewer—**  
Carload lots.  
Standard Pipe and Fittings, 3  
to 24 in., f.o.b. factory.  
First-class ..... 85¢@86¢  
Second-class ..... 90¢  
NOTE—Market irregular.

**Pipe, Stone—**  
Per 100 joints.  
Edwards' Nested: C. L. L. C. L.  
5 in., Standard Blue ..... \$6.25 \$7.25  
5 in., Standard Blue ..... 6.75 7.75  
7 in., Standard Blue ..... 7.75 8.75  
5 in., Royal Blue ..... 7.00 8.00  
6 in., Royal Blue ..... 7.50 8.50  
7 in., Royal Blue ..... 8.50 9.50

**Planes and Plane Irons—**  
Wood Planes—  
Bench, first qual. .... 30¢@30¢/10¢  
Bench, second qual. .... 40¢@40¢/10¢  
Molding ..... 25¢@25¢/10¢  
Bailey's (Stanley R. & L. Co.) 35¢@25¢  
Chapin-Stephens Co.:  
Bench, First Quality ..... 30¢  
Bench, Second Quality ..... 40¢  
Molding and Miscellaneous ..... 25¢  
Toy and German ..... 30¢  
Union ..... 60¢

**Iron Planes—**  
Bailey's (Stanley R. & L. Co.) ..... 35¢  
Chapin's Iron Planes ..... 50¢@10¢  
Miscellaneous Planes (Stanley R. & L. Co.) ..... 30¢@5¢  
Union ..... 60¢

**Plane Irons—**  
Wood Bench Plane Irons, list  
Dec. 12, '06 ..... 25¢  
Buck Bros. .... 30¢  
Chapin-Stephens Co. .... 25¢  
Stanley R. & L. Co. .... 30¢  
Union ..... 50¢  
L. & J. White ..... 20¢@25¢

**Planters, Corn, Hand—**  
Kohler's Eclipse ..... doz. \$8.00

**Plates—**  
Felloe ..... lb. 4¢@4¢  
Self-Sealing Pie Plates (B. M. Co.) ..... doz. \$2.00 ..... 50¢

**Pliers and Nippers—**  
Button Pliers ..... 75¢@10¢/75, 10, 5¢  
Gas Burner, per doz., 5 in. .... \$1.25  
@ \$1.50; 6 in. .... \$1.45 @ \$1.50.  
Gas Pipe ..... 7 8 10 12-in.  
\$2.00 \$2.25 \$2.75 \$3.50  
Acme Nippers ..... 50¢@5¢  
Cronk & Carrier Mfg. Co.:  
American Button ..... 80¢  
Improved Button ..... 75¢@10¢  
Cronk's ..... 60¢  
No. 80 Linemen's ..... 50¢  
Stub's Pattern ..... 45¢  
Combination and others ..... 35¢  
Heller's Farriers' Nippers, Pincers  
and Tools ..... 40¢@50¢/10¢@5¢  
The Nettleton Mfg. Co. Reversible  
Cutting Nippers ..... 40¢  
F. S. & W. Tanners' Cutting Nip-  
pers ..... 40¢  
Wm. Schollhorn Co.:  
Bernard, 33 1/4%; Elm City, 33 1/4%;  
Paragon, 50%; Lodi, 50%;  
Swedish Side, End and Diagonal Cut-  
ting Pliers ..... 60¢  
Utica Drop Forge & Tool Co.:  
Pliers and Nippers, all kinds ..... 40¢

**Plumbs and Levels—**  
Chapin-Stephens Co.:  
Plumbs and Levels ..... 30¢@30¢/10¢  
Chapin's Imp. Brass Cor. .... 40¢@10¢  
Pocket Levels ..... 30¢@10¢  
Extension Sights ..... 30¢@10¢  
Machinists' Levels ..... 40¢@10¢  
Diston's Plumbs and Levels ..... 60¢@10¢  
Diston's Pocket Levels ..... 60¢@10¢  
C. E. Jennings & Co.'s Iron, Adjust-  
able ..... 45¢@7¢  
Stanley R. & L. Co. ..... 40¢  
Stanley's Duplex ..... 40¢  
Woods' Extension ..... 35¢

**Poachers, Egg—**  
Buffalo Steam Egg Poachers, No. 2,  
No. 1, \$6.00; No. 2, \$9.00; No. 3,  
\$9.00; No. 4, \$12.00 ..... 50¢

**Points, Glaziers—**  
Bulk and 1-lb. papers ..... lb. 10¢  
1/2-lb. papers ..... lb. 9¢@10¢  
1/4-lb. papers ..... lb. 8¢@11¢

**Pokes, Animal—**  
Ft. Madison Hawkeye ..... doz. \$3.25  
Ft. Madison Western ..... doz. \$4.00

**Police Goods—**  
Manufacturers' Lists ..... 25¢@45¢  
Tower's ..... 25¢

**Polish—Metal, Etc—**  
Glasbrite, No. 2, 5 lb can (powder),  
each, \$1.25; doz. \$12.00; No. 2, 10 lb  
can (cake), each, \$2.50; doz. \$24.00.  
Prestoline Liquid, No. 1 (1/2 pt.),  
doz. \$3.00; No. 2 (1 qt.), \$9.00. 40¢  
Prestoline Paste ..... 40¢  
George William Hoffman:  
U. S. Metal Polish Paste, 3 oz.  
boxes, doz. 50¢; doz. \$4.50;  
1 lb boxes, doz. \$1.25; 1 lb  
boxes, doz. \$2.25.  
U. S. Liquid, 3 oz. cans, doz.,  
\$1.25.  
Barkkeepers' Friend Metal Polish,  
doz., \$1.75.

**Stove—**  
Black Eagle Benzine Paste, 5 lb cans,  
doz. \$10.40  
Black Eagle, Liquid, 1/2 pt. cans,  
doz. 75¢  
Black Jack Paste, 5 lb cans, doz. \$9.00  
Black Kid Paste, 5 lb cans, each, \$0.65  
Ladd's Black Beauty Liquid, per  
100 tins ..... \$6.75  
Joseph Dixon's, gr. \$5.75 ..... 10¢  
Dixon's Plumbago ..... 10¢  
Fireside ..... gr. \$1.50 ..... 10¢  
Gem, gr. \$1.50 ..... 10¢  
Japanese ..... gr. \$3.50  
Jet Black ..... gr. \$3.50  
Peerless Iron Enamel, 10 oz. cans,  
doz. \$1.50  
Wynn's Black Silk:  
Paste, cans, doz., 5 oz., \$0.75;  
1/2 lb, \$1.00; 1 lb, \$1.75  
Paste, 5 lb can ..... \$0.70  
Liquid, cans, doz., 6 oz., \$0.75;  
1/2 pt., \$1.00; 1 pt. .... \$1.75  
Steel Range Enamel, doz., 1/2 pt.,  
\$1.00; 1/2 pt., \$1.25.

**Poppers, Corn—**  
1 qt. Square, doz. \$0.80; gro. \$8.00  
1 qt. Round, doz. \$0.90; gro. \$9.00  
1/2 qt. Square, doz. \$1.00; gro. \$10.00  
2 qt. Square ..... doz. \$1.20; gro. \$12.00

**Post Hole and Tree Au-  
gers and Diggers—**  
See also Diggers, Post Hole, &c.

**Posts, Steel—**  
Steel Fence Posts, each, 5 ft., 42¢;  
6 ft., 46¢; 6 1/2 ft., 48¢.  
Steel Hitching Posts ..... each \$1.30

**Potato Parers—**  
See Parers, Potato.  
**Pots, Glue—**  
Enamelled ..... 35¢@10¢  
Tinned ..... 30¢@10¢

**Powder—**  
In Canisters:  
Duck, 1 lb. .... each 45¢  
Fine Sporting, 1 lb. .... each 45¢  
Rifle, 1/2 lb. .... each 15¢  
Rifle, 1 lb. .... each 25¢  
In Kegs:  
12 1/2-lb. kegs ..... \$3.50  
25-lb. kegs ..... \$4.50  
King's Semi-Smokeless:  
Keg (25 lb bulk) ..... \$6.50  
Half Keg (12 1/2 lb bulk) ..... \$3.50  
Quarter Keg (6 1/2 lb bulk) ..... \$1.90  
Case 24 (1 lb cans bulk) ..... \$8.50  
Half case (1 lb cans bulk) ..... \$4.50  
King's Smokeless Shot Gun Rifle:  
Keg (25 lb bulk) ..... \$12.00 \$15.00  
Half Keg (12 1/2 lb bulk) ..... 6.25 7.75  
Quarter Keg (6 1/2 lb bulk) ..... 3.25 4.00  
Case 24 (1 lb cans bulk) ..... 14.00 17.00  
Half case 12 (1 lb c. bk.) ..... 7.25 8.75  
Robin Hood Sim. less Shot Gun. 50¢@20¢

**Presses—**  
Fruit and Jelly—  
Enterprise Mfg. Co. .... 20¢@25¢  
**Seal Presses—**  
Morrill's No. 1, doz. \$20.00 ..... 50¢  
**Pruning Hooks and Shears**  
See Shears.

**Pullers, Nail—**  
Cyclops ..... 60¢  
Miller's Falls, No. 3, doz. \$12.00  
Morrill's No. 1, Nail Puller, doz. \$20.00  
Pearson No. 1, Cyclone Spike Puller,  
each \$30.00 ..... 50¢  
Scranton, Case Lots:  
No. 2B (large) ..... \$5.50  
No. 3B (small) ..... \$5.00  
Smith & Hemenway Co.:  
Diamond B. case lots, doz., Large,  
\$9.00; Small, \$7.50.  
Giant No. 1, doz. \$18; No. 1 1/2,  
\$16.50; No. 3, \$15 ..... 35¢  
Staple Pullers, Utica and Davi-  
son ..... 60¢  
Parrot Tack and Stub Puller, doz.,  
75¢; gr. \$8.00

**Pulleys, Single Wheel—**  
Inch ..... 1/2 1/4 1/2 3  
Acning or Tackle,  
doz. .... \$0.30 15 60 1.05  
Hay Fork, Swivel or Solid Eye,  
doz., 4 in. .... \$1.25 5 in. .... \$1.55  
Inch ..... 2 1/4 1/2 1/4  
Hot House, doz. .... \$0.65 85 1.80  
Inch ..... 1/4 1/2 1/4 1/4  
Screw, doz. .... \$0.16 1/2 1/4 1/4  
Inch ..... 1/4 1/2 1/4 1/4  
Side, doz. .... \$0.25 10 55 80  
Inch ..... 1/2 1/4 1/2 1/4  
Stowell's:  
Ceiling or End, Anti-Friction. 60¢@10¢  
Dumb Waiter, Anti-Friction. 60¢@10¢  
Electric Light ..... 60¢  
Side, Anti-Friction ..... 60¢@10¢

**Sash Pulleys—**  
Common Frame; Square or  
Round End, per doz. 1 1/4 and  
2 in. .... 16¢@19¢  
Auger Mortise, No. Face Plate,  
per doz. 1 1/4 and 2 in. .... 17¢@19¢  
Acme, No. 35, 1 1/4 in. 18¢; 2 in. 20¢  
Fox-All-Steel, Nos. 3 and 1, 2 in. ....  
doz. 56¢

Grand Rapids All Steel Noiseless ..... 50¢  
Ideal ..... 70¢@5¢  
Niagara, No. 25, 1 1/4 in., 18 1/2¢; 2  
in., 20 1/2¢  
No. 26, 1 1/4 in., 14 1/2¢; 2 in., 16 1/2¢  
Star, No. 26, 1 1/4 in., 18 1/2¢; 2 in., 20 1/2¢  
Tackle Blocks—See Blocks.

**Pumps—**  
Cistern ..... 60¢  
Pitcher Spout ..... 75¢@10¢/75¢  
Wood Pumps, Tubing, &c. 45¢@50¢  
Barnes Dbl. Acting (low list) 40¢@10¢  
Barnes Pitcher Spout ..... 75¢@10¢  
Contractors' Rubber Diaphragm No.  
2, B. & L. Block Co. .... \$16.00  
Daisy Spray Pump ..... doz. \$6.50  
Flint & Walling's Fast Mail Hand,  
(low list) ..... 55¢  
Flint & Walling's Fast Mail (low  
list) ..... 55¢  
Flint & Walling's Tight Top Pitcher.  
75¢@10¢/5¢

National Specialty Mfg. Co. 75¢@10¢/5¢  
ing, Nos. 2, \$6.00; 3, \$5.50 ..... 30¢  
Myers' Pumps (low list) 40¢@10¢  
Myers' Power Pumps ..... 40¢@10¢  
Myers' Spray Pumps ..... 40¢@10¢

**Pump Leathers—**  
Plunger and Lower Valve—Per  
gro.:  
Inch ..... 2 3/4 2 1/2 2 1/4 2 1/2  
Inch ..... 3 3 1/4 3 1/2 3 1/4 3 1/2  
Plunger Cup Leathers—Per 100:  
Inch ..... 2 1/2 3 3 1/2 4  
Inch ..... 2 1/2 3 3 1/2 4  
Inch ..... 2 1/2 3 3 1/2 4

**Punches—**  
Saddlers' or Drive, good ..... doz. 50¢@75¢  
Spring, single tube, good qual-  
ity ..... \$1.75@2.00  
Revolving (4 tubes) ..... doz. \$3.50@3.75  
Bemis & Call Co.'s Cast Stl Drive ..... 50¢  
Morrill's Nos. 1A, 1B, 1C, 1D,  
1E, 1F, 1G, 1H, 1I, 1J, 1K, 1L,  
1M, 1N, 1O, 1P, 1Q, 1R, 1S, 1T,  
1U, 1V, 1W, 1X, 1Y, 1Z, 1AA, 1AB,  
1AC, 1AD, 1AE, 1AF, 1AG, 1AH,  
1AI, 1AJ, 1AK, 1AL, 1AM, 1AN,  
1AO, 1AP, 1AQ, 1AR, 1AS, 1AT,  
1AU, 1AV, 1AW, 1AX, 1AY, 1AZ,  
1BA, 1BB, 1BC, 1BD, 1BE, 1BF,  
1BG, 1BH, 1BI, 1BJ, 1BK, 1BL,  
1BM, 1BN, 1BO, 1BP, 1BQ, 1BR,  
1BS, 1BT, 1BU, 1BV, 1BW, 1BX,  
1BY, 1BZ, 1CA, 1CB, 1CC, 1CD,  
1CE, 1CF, 1CG, 1CH, 1CI, 1CJ,  
1CK, 1CL, 1CM, 1CN, 1CO, 1CP,  
1CQ, 1CR, 1CS, 1CT, 1CU, 1CV,  
1CW, 1CX, 1CY, 1CZ, 1DA, 1DB,  
1DC, 1DD, 1DE, 1DF, 1DG, 1DH,  
1DI, 1DJ, 1DK, 1DL, 1DM, 1DN,  
1DO, 1DP, 1DQ, 1DR, 1DS, 1DT,  
1DU, 1DV, 1DW, 1DX, 1DY, 1DZ,  
1EA, 1EB, 1EC, 1ED, 1EE, 1EF,  
1EG, 1EH, 1EI, 1EJ, 1EK, 1EL,  
1EM, 1EN, 1EO, 1EP, 1EQ, 1ER,  
1ES, 1ET, 1EU, 1EV, 1EW, 1EX,  
1EY, 1EZ, 1FA, 1FB, 1FC, 1FD,  
1FE, 1FF, 1FG, 1FH, 1FI, 1FJ,  
1FK, 1FL, 1FM, 1FN, 1FO, 1FP,  
1FQ, 1FR, 1FS, 1FT, 1FU, 1FV,  
1FW, 1FX, 1FY, 1FZ, 1GA, 1GB,  
1GC, 1GD, 1GE, 1GF, 1GG, 1GH,  
1GI, 1GJ, 1GK, 1GL, 1GM, 1GN,  
1GO, 1GP, 1GQ, 1GR, 1GS, 1GT,  
1GU, 1GV, 1GW, 1GX, 1GY, 1GZ,  
1HA, 1HB, 1HC, 1HD, 1HE, 1HF,  
1HG, 1HH, 1HI, 1HJ, 1HK, 1HL,  
1HM, 1HN, 1HO, 1HP, 1HQ, 1HR,  
1HS, 1HT, 1HU, 1HV, 1HW, 1HX,  
1HY, 1HZ, 1IA, 1IB, 1IC, 1ID,  
1IE, 1IF, 1IG, 1IH, 1II, 1IJ, 1IK,  
1IL, 1IM, 1IN, 1IO, 1IP, 1IQ, 1IR,  
1IS, 1IT, 1IU, 1IV, 1IW, 1IX,  
1IY, 1IZ, 1JA, 1JB, 1JC, 1JD,  
1JE, 1JF, 1JG, 1JH, 1JI, 1JJ,  
1JK, 1JL, 1JM, 1JN, 1JO, 1JP,  
1JQ, 1JR, 1JS, 1JT, 1JU, 1JV,  
1JW, 1JX, 1JY, 1JZ, 1KA, 1KB,  
1KC, 1KD, 1KE, 1KF, 1KG, 1KH,  
1KI, 1KJ, 1KK, 1KL, 1KM, 1KN,  
1KO, 1KP, 1KQ, 1KR, 1KS, 1KT,  
1KU, 1KV, 1KW, 1KX, 1KY, 1KZ,  
1LA, 1LB, 1LC, 1LD, 1LE, 1LF,  
1LG, 1LH, 1LI, 1LJ, 1LK, 1LL,  
1LM, 1LN, 1LO, 1LP, 1LQ, 1LR,  
1LS, 1LT, 1LU, 1LV, 1LW, 1LX,  
1LY, 1LZ, 1MA, 1MB, 1MC, 1MD,  
1ME, 1MF, 1MG, 1MH, 1MI, 1MJ,  
1MK, 1ML, 1MM, 1MN, 1MO, 1MP,  
1MQ, 1MR, 1MS, 1MT, 1MU, 1MV,  
1MW, 1MX, 1MY, 1MZ, 1NA, 1NB,  
1NC, 1ND, 1NE, 1NF, 1NG, 1NH,  
1NI, 1NJ, 1NK, 1NL, 1NM, 1NN,  
1NO, 1NP, 1NQ, 1NR, 1NS, 1NT,  
1NU, 1NV, 1NW, 1NX, 1NY, 1NZ,  
1OA, 1OB, 1OC, 1OD, 1OE, 1OF,  
1OG, 1OH, 1OI, 1OJ, 1OK, 1OL,  
1OM, 1ON, 1OO, 1OP, 1OQ, 1OR,  
1OS, 1OT, 1OU, 1OV, 1OW, 1OX,  
1OY, 1OZ, 1PA, 1PB, 1PC, 1PD,  
1PE, 1PF, 1PG, 1PH, 1PI, 1PJ,  
1PK, 1PL, 1PM, 1PN, 1PO, 1PP,  
1PQ, 1PR, 1PS, 1PT, 1PU, 1PV,  
1PW, 1PX, 1PY, 1PZ, 1QA, 1QB,  
1QC, 1QD, 1QE, 1QF, 1QG, 1QH,  
1QI, 1QJ, 1QK, 1QL, 1QM, 1QN,  
1QO, 1QP, 1QQ, 1QR, 1QS, 1QT,  
1QU, 1QV, 1QW, 1QX, 1QY, 1QZ,  
1RA, 1RB, 1RC, 1RD, 1RE, 1RF,  
1RG, 1RH, 1RI, 1RJ, 1RK, 1RL,  
1RM, 1RN, 1RO, 1RP, 1RQ, 1RR,  
1RS, 1RT, 1RU, 1RV, 1RW, 1RX,  
1RY, 1RZ, 1SA, 1SB, 1SC, 1SD,  
1SE, 1SF, 1SG, 1SH, 1SI, 1SJ,  
1SK, 1SL, 1SM, 1SN, 1SO, 1SP,  
1SQ, 1SR, 1SS, 1ST, 1SU, 1SV,  
1SW, 1SX, 1SY, 1SZ, 1TA, 1TB,  
1TC, 1TD, 1TE, 1TF, 1TG, 1TH,  
1TI, 1TJ, 1TK, 1TL, 1TM, 1TN,  
1TO, 1TP, 1TQ, 1TR, 1TS, 1TT,  
1TU, 1TV, 1TW, 1TX, 1TY, 1TZ,  
1UA, 1UB, 1UC, 1UD, 1UE, 1UF,  
1UG, 1UH, 1UI, 1UJ, 1UK, 1UL,  
1UM, 1UN, 1UO, 1UP, 1UQ, 1UR,  
1US, 1UT, 1UU, 1UV, 1UW, 1UX,  
1UY, 1UZ, 1VA, 1VB, 1VC, 1VD,  
1VE, 1VF, 1VG, 1VH, 1VI, 1VJ,  
1VK, 1VL, 1VM, 1VN, 1VO, 1VP,  
1VQ, 1VR, 1VS, 1VT, 1VU, 1VV,  
1VW, 1VX, 1VY, 1VZ, 1WA, 1WB,  
1WC, 1WD, 1WE, 1WF, 1WG, 1WH,  
1WI, 1WJ, 1WK, 1WL, 1WM, 1WN,  
1WO, 1WP, 1WQ, 1WR, 1WS, 1WT,  
1WU, 1WV, 1WW, 1WX, 1WY, 1WZ,  
1XA, 1XB, 1XC, 1XD, 1XE, 1XF,  
1XG, 1XH, 1XI, 1XJ, 1XK, 1XL,  
1XM, 1XN, 1XO, 1XP, 1XQ, 1XR,  
1XS, 1XT, 1XU, 1XV, 1XW, 1XX,  
1XY, 1XZ, 1YA, 1YB, 1YC, 1YD,  
1YE, 1YF, 1YG, 1YH, 1YI, 1YJ,  
1YK, 1YL, 1YM, 1YN, 1YO, 1YP,  
1YQ, 1YR, 1YS, 1YT, 1YU, 1YV,  
1YW, 1YX, 1YY, 1YZ, 1ZA, 1ZB,  
1ZC, 1ZD, 1ZE, 1ZF, 1ZG, 1ZH,  
1ZI, 1ZJ, 1ZK, 1ZL, 1ZM, 1ZN,  
1ZO, 1ZP, 1ZQ, 1ZR, 1ZS, 1ZT,  
1ZU, 1ZV, 1ZW, 1ZX, 1ZY, 1ZZ

**Rail—Barn Door, &c.—**  
Sliding Door, Painted Iron ..... 2 1/2¢@2 1/2¢  
Sliding Door, Wrought Brass,  
1 1/2 in. lb. 36¢ ..... 30¢  
Allith Mfg. Co.: Reliable Hanger  
Track ..... 50¢  
Cronk's:  
Double Braced Steel Rail, 1/2 ft. 3 1/4¢  
O. N. T. Rail ..... 3¢  
Hinge Rail ..... 39¢@6¢  
Griffin's:  
xxx, 100 ft., 1 x 3-16 in., \$3.00;  
1 1/2 x 3-16 in. 3.50.  
Hinged Hanger, 100 ft., 1 x 3-16  
in., \$3.10; 1 1/2 x 3-16 in., \$3.80.  
Lane's:  
Hinged Track, 100 ft., 1 in., \$3.40;  
1 1/2 in., \$3.90.  
O. N. T. 100 ft., 1 in., \$3.00; 1 1/2  
in., \$3.60; 1 1/2 in., \$4.00.  
Standard, 1 1/2 in., 100 ft. \$4.00  
Lawrence Bros.:  
100 ft. No. 201, \$4.00; No. 202, \$4.00  
New York, 1 x 3-16 in., 100 ft. \$3.00  
McKinney's:  
Hanger Rail, 1/2 ft., 1 1/2 in., 50¢  
None Better ..... 3¢  
Standard ..... 4¢  
Myers' Stayon Track ..... 60¢@10¢  
Richards' Mfg. Co.:  
Common, 1 x 3-16 in., \$3.00; 1 1/2 x  
3-16 in., \$3.50; 1 1/2 x 3-16 in., \$3.50.  
Special Hinged Hanger Rail ..... 60¢@10¢  
Lag Screw Rail, No. 65 ..... 50¢  
Gauge Trolley Track, 1/2 ft. No. 31,  
9¢; No. 32, 14¢; No. 33, 20¢  
No. 50 ..... 60¢@10¢  
No. 61, \$3.00; 62, \$3.25; 63, \$3.50; 64,  
\$4.00; 65, \$3.25; 46, \$3.50; 49, No. 1,  
\$3.25; 49, No. 2, \$3.50.  
Stowell's:  
Cast Rail ..... 1/2 ft. 2 1/4¢  
Steel Rail, Plain ..... 25¢  
Wrought Bracket, 1 3-16 in. 1/2 ft. 3¢  
Wrought Bracket, 1 1/2 x 5-16 in. 1/2 ft. 3¢  
Sweet's Hyllo, 1/2 ft. 1 1/2¢  
F. L. B. Steel Rail ..... 100 ft. \$3.00  
No. 9, 1 x 3-16 in. 100 ft. \$3.00

**Rakes—**  
NOTE—Many goods are sold  
at net prices.  
Fort Madison Red Head Lawn ..... \$3.25  
Fort Madison Blue Head Lawn ..... \$2.70  
Jackson Lawn, 29 and 30 teeth, ..... \$1.25  
Cronk's:  
New Champion Garden, 1/2 doz. 12  
teeth, \$15.00; 14, \$16.50; 16, \$18.00 ..... 75¢  
Victor Garden, 1/2 doz. 12 teeth,  
\$15.00; 14, \$16.50; 16, \$18.00 ..... 80¢  
Queen City Lawn, 1/2 doz. 20 teeth,  
\$2.50; 21, \$3.00 ..... net  
Anticlog Lawn, 1/2 doz. ..... \$4.00  
Malleable Garden ..... 70¢@10¢  
Ideal Steel Garden, 1/2 doz. 12 teeth,  
\$15.00; 14, \$16.00; 16, \$18.00 ..... 80¢  
Kohler's:  
Lawn Queen, 20-teeth ..... 1/2 doz. \$2.90  
Lawn Queen, 24-teeth ..... 1/2 doz. \$3.00  
Paragon, 20-teeth ..... 1/2 doz. \$2.70  
Paragon, 24-teeth ..... 1/2 doz. \$2.75  
Steel Garden, 14-teeth ..... 1/2 doz. \$2.40  
Malleable Garden, 14-teeth, 1/2 doz. \$2.40  
\$1.75@2.00

**Rasps, Horse—**  
Diston's ..... 75¢  
Heller Bros. .... 70¢@70¢/10¢@5¢  
Liveright Bros. Gold Medal 70¢@10¢/75¢  
New Nicholson ..... 70¢@10¢/75¢  
See also Files.

**Razors—**  
Liana Bo-ras-ic ..... 60¢  
Fox Razors, No. 42, 60¢@10¢  
No. 41, \$20.00; No. 42, Platina. } 50¢  
Red Devil ..... 50¢

Silberstein:  
Carbo Magnetic, \$21.00; Griffon, No.  
65, \$13.50; Griffon, No. 00, \$12.00;  
all other Razors, 40¢.

**Safety Razors—**  
Kampfe Bros.:  
Star Safety, 25%; Star Interchange-  
able, 25%; Star Safety Corn, 25%;  
Silberstein ..... 40%

**Reels, Fishing—**  
Hendryx:  
M 6, Q 6, A 6, B 6, M 9 1/4, M 16,  
Q 16, A 16, B 16, 4008, Rubber,  
Popolo, Nickered Popolo ..... 20¢  
Aluminum German Mill, Bronze 25¢  
1240 N, 124 N ..... 20¢  
3001 N, 06 N, 6 RM, G 9 ..... 25¢  
4 N, 6 PN, 24 N, 26 PN ..... 20¢  
2904 P, 33 1/4%; 2904 PN, 33 1/4%; 0924 N,  
33 1/4%; 0208 N, 33 1/4%; 020904 PN,  
33 1/4%; 802 N, 33 1/4% ..... 25¢  
988 PN, 2904 N, 974 PN ..... 25¢  
5009 PN, 5009 N ..... 20¢  
Competitor, 102 P, 102 PN, 202 P,  
202 PN, 402 PR, 202 PR ..... 20¢  
304 P, 304 PN, 00304 P, 00304 PN, 33 1/4%

**Registers—List July 1, 1903.**  
Japanned, Electroplated and  
Bronzed ..... 66¢@66¢/10¢  
White Porcelain Enamel ..... 60¢  
Solid Brass or Bronze Metal ..... 40¢@10%

**Revolvers—**  
Single Action ..... 95¢@1.00  
Double Action, except 44 cal. \$1.85  
Double Action, 44 caliber ..... \$3.25  
Automatic ..... \$3.25  
Hammerless ..... \$3.75

**Riddles, Hardware Grade**  
16 in. .... per doz. \$2.50@2.75  
17 in. .... per doz. \$2.75@3.00  
18 in. .... per doz. \$3.00@3.25

**Rings and Ringers—**  
Bull Rings—  
Steel ..... 2 1/2 2 1/4 3 inch.  
Copper ..... \$0.70 0.75 0.80 doz.  
Copper ..... \$1.00 1.15 1.40 doz.  
Rea's Improved Self-Piercing, 1/2 doz.,  
Copper, 2 in., \$1.25; 2 1/2 in., \$1.50;  
3 in., \$1.75.  
Hog Rings and Ringers—  
Hill's Rings, gro. boxes \$4.00@4.50  
Hill's Ringers, Gray Iron ..... doz. 50¢@55¢  
Hill's Ringers, Malleable Iron ..... doz. 70¢@75¢  
Blair's Rings ..... per doz. \$4.75@5.25  
Blair's Ringers ..... per doz. \$0.60@.65  
Brown's Rings ..... per doz. \$5.00@5.50  
Brown's Ringers ..... per doz. \$0.60@.65

**Rivets and Burrs—**  
Copper ..... 35¢@33 1/2¢  
Carriage, Coopers', Tanners', &c.:  
Black ..... 70¢@10¢  
Metallic Tinned ..... 70¢  
Bifurcated and Tubular—  
Assorted in Boxes.  
Bifurcated, per doz. boxes, paste-  
board boxes, \$3@25¢; Tin boxes,  
25¢@32¢.  
Tubular, per doz. boxes, 50 count,  
1 1/

Kueffel & Esser Co.:	
Folding, Wood.....	35&10%
Folding, Steel.....	33&10%
Larkin's Steel.....	50&10%
Larkin's Lumber.....	60%
Stanley R. & L. Co.:	
Boxwood.....	60%
Ivory.....	45%
Miscellaneous.....	60%
Zig Zag.....	40%
Zig Zag, Pin Joint.....	42&5%
Union Nut Co.:	
Boxwood.....	60&10%
Ivory.....	35&10%

**Sash Balances—**

See Balance, Sash.

**Sash Locks—**

See Locks, Sash.

**Sash Weights—**

See Weights, Sash.

**Sausage Stuffers or Fillers—**

See Stuffers or Fillers, Sausage.

**Saw Frames—**

See Frames, Saw.

**Saw Sets—See Sets, Saw.****Saw Tools—See Tools, Saw.****Saws—**

AKUBI:	
Circular.....	45%
Band.....	50&10%
Butcher Saws.....	50%
Cross Cuts.....	40%
One-Man Cross Cut.....	40%
Narrow Cross Cut.....	40%
Hand, Rip and Panel.....	35&5%
Miter Box and Compass.....	40%
Mulay, Mill and Drag.....	45%
Chapin-Stephens Co.:	
Turning Saws and Frames.....	30&10%
Diamond Saw & Stamping Works.....	30&10%
Sterling Kitchen Saws.....	30&10%
Diston's:	
Circular, Solid and Ins'ted Tooth.....	50%
Band, 2 to 18 in. wide.....	60%
Band, 1/4 to 1 1/2.....	60%
Crosscut.....	45%
Narrow.....	45%
Quarry, Mill and Drag.....	50%
Framed Woodsaws.....	25%
Woodsaw Blades.....	25%
Woodsaw Rods, Tinned.....	15%
Hand Saws, Nos. 12, 9, 9, 16, 1109.....	25%
108, 120, 70, 71, 8.....	25%
Hand Saws, Nos. 7, 107, 107 1/2, 3.....	30%
0, 0, Combination.....	30%
Compass, Key Hole, &c.....	25%
Butcher Saws and Blades.....	30%
C. E. Jennings & Co.'s:	
Back Saws.....	25%
Butcher Saws.....	25%
Compass and Key Hole Saws.....	30%
Framed Wood Saws.....	30%
Hand Saws.....	20&2 1/2%
Wood Saw Blades.....	35%
Millers Falls:	
Butcher Saws.....	15&10%
Star Saw Blades.....	15&10%
Massachusetts Saw Works:	
Victory Kitchen Saws.....	40&10%
Butcher Saws and Blades.....	30&10%
Peace & Richardson's Hand Saws.....	30%
Simonds:	
Circular Saws.....	45%
Crescent Ground Cross Cut Saws.....	30%
One-Man Cross Cut.....	40%
Gang Mill, Mulay and Drag Saws.....	45%
Hand Saws.....	50%
Back Saws.....	25&2 1/2%
Butcher Saws.....	25&2 1/2%
Hand Saws.....	25&2 1/2%
Hand Saws, Bay State Brand.....	45%
Compass, Key Hole, &c.....	40&1 1/2%
Wood Saws.....	40&1 1/2%
Wheeler, Madden, Clemens Mfg. Co.'s Cross Cut Saws.....	50%

**Hack Saw Blades and Frames—**

Atkins' Hack Saw Blades A & A.....	25%
Diston's:	
Concave Blades.....	25%
Keytone Blades.....	30%
Hack Saw Frames.....	30%
Simonds File Co.....	30%
C. E. Jennings & Co.'s:	
Hack Saw Frames, Nos. 175, 180.....	40&7 1/2%
Hack Saws, Nos. 175, 180, complete.....	40&7 1/2%
Goodell's Hack Saw Blades.....	40&10%
Griffin's Hack Saw Frames.....	35&10%
Griffin's Hack Saw Blades.....	35&10%
Star Hack Saws and Blades.....	15&10%
Sterling Hack Saw Blades.....	30&10&5%
Sterling Hack Saw Frames.....	30&10&10%
Sterling Power Hack Saw Machines.....	each, No. 1, \$25.00; No. 2, \$30.00; 10%
Victor Hack Saw Blades.....	25%
Victor Hack Saw Frames.....	25%

**Scroll—**

Barnes, No. 7, \$15.....	25%
Barnes' Scroll Saw Blades.....	40%
Barnes' Velocipede Power Scroll Saw.....	without boring attachment, \$18; with boring attachment, \$20.....25%
Lester, complete, \$10.00.....	15&10%
Rogers, complete, \$3.50 and \$4.00.....	15&10%

**Scales—**

Family, Turnbull's.....	50&10%
Counter:	
Hatch, Platform, 1/4 oz. to 4 lbs.....	dos. \$5.50
Two Platforms, 1/4 oz. to 2 lbs.....	dos. \$16.00
Union Platform, Plain \$1.70 to \$1.90.....	dos. \$1.85 to \$2.15
Union Platform, Stpd. \$1.85 to \$2.15.....	
Chattillon's:	
Eureka.....	25%
Favorite.....	40%
Crocker's Trip Scales.....	50%
Chicago Scale Co.:	
The Little Detective.....	25 lbs 50%
Union or Family No. 2.....	50%
Portable Platform (reduced list).....	50%
Wagon or Stock (reduced list).....	45%
The Standard Portables.....	45%
The Standard R. R. and Wagons.....	50&10%

**Scrapers—**

Rox. 1 Handle.....	dos. \$2.00 to \$2.25
Rox. 2 Handle.....	dos. \$3.50 to \$2.80
Ship.....	Light, \$2.00; Heavy, \$4.50

**Adjustable Box Scraper (S. R. & L. Co.) \$6.00.**

Chapin-Stephens Co., Box.....30&amp;10%

**Screws—Bench and Hand**

Bench, Iron, doz., 1 in., \$2.50.....	
2 1/2, 1 1/2, \$3.00 to \$3.25; 1 1/4, \$3.50 to \$3.75.....	
Hand, Wood.....	20&10%
Hand, Wood.....	20&10%
R. Bliss Mfg. Co., Hand, 20&10%.....	
Chapin-Stephens Co., Hand.....	20%
Coach, Lag and Hand Rail—	
Lag, Cone Point, list Oct. 1, '09.....	75&15%
Coach, Gimlet Point, list Oct. 1, '09.....	75&10%
Hand Rail, list Jan. 1, '01.....	70&10%

**Jack Screws—**

Standard list.....	75%
Millers Falls.....	50&10%
P. S. & W.....	50%
Swett Iron Works.....	75&80%

**Machine—**

List Jan. 1, '09:

Flat or Round Head, Iron.....50&amp;10%

Flat or Round Head, Brass.....50&amp;10%

Set and Cap—

Set (Iron).....75&amp;10&amp;7 1/2%

Set (Steel), net advance over Iron.....25%

Sq. Hd. Cap.....70&amp;10&amp;7 1/2%

Hex. Hd. Cap.....70&amp;10&amp;7 1/2%

Rd. Hd. Cap.....50&amp;7 1/2%

Fillister Hd. Cap.....60&amp;7 1/2%

**Wood—**

List July 23, 1903:

Flat Head, Iron.....87&amp;5&amp;10%

Round Head, Iron.....83&amp;5&amp;10%

Flat Head, Brass.....82&amp;5&amp;10%

Round Head, Brass.....80&amp;5&amp;10%

Flat Head, Bronze.....77&amp;5&amp;10%

Round Head, Bronze.....75&amp;5&amp;10%

Drive Screws.....87&amp;5&amp;10%

**Scroll Saws—**

See Saws, Scroll.

**Scythes—**

Per doz.

Grass, No. 1, Plain.....\$6.25 to \$6.75

Clipper, Bronzed Webb.....\$6.50 to \$7.00

No. 3 Clipper, Pol'd Webb.....\$6.75 to \$7.25

No. 6 Clipper and Solid Steel.....\$7.00 to \$7.50

Bush, Weed and Bramble, No. 2.....\$6.50 to \$7.00

Grain, No. 1.....\$8.25 to \$8.75

Bronzed Webb, No. 1.....\$8.50 to \$9.00

Nos. 3 and 4 Clipper, Grain.....\$8.75 to \$9.25

Solid Steel, No. 6.....\$9.25 to \$9.75

**Seeders, Raisin—**

Enterprise.....25&amp;30%

**Sets—Awl and Tool—**

Fray's Adj. Tool Handles, Nos. 1, \$12; 2, \$18; 3, \$12; 4, \$15; 5, \$18.....50%

C. E. Jennings &amp; Co.'s Model Tool Holders.....30%

Millers Falls Adj. Tool Handles, No. 1, \$12; No. 4, \$12; No. 5, \$18.....15&amp;10%

**Garden Tool Sets—**

Ft. Madison Three Plows, Hoe, Rake and Shovel.....\$9 doz sets \$9.00

**Sets, Nail—**

Octagon.....gro. \$3.50 to \$3.75

Buck Bros.....\$3.50 to \$3.75

Cannon's Diamond Points, \$9 gro. \$12.40.....\$9 gro. \$12.40

Mayhew's.....\$9 gro. \$9.20

Snell's Corrugated, Cup Pt.....\$9 gro. \$7.20

Snell's Knurled, Cup Pt.....\$9 gro. \$7.20

Victor Knurled Cup Pt.....\$9 gro. \$7.50

**Rivet—**

Regular list.....75&amp;75&amp;10%

**Saw—**

Atkin's:

Adjustable.....40%

Diston's Star, Monarch and Triumph.....30%

Morrill's No. 1.....\$15.00

Nos. 3 and 4, Cross Cut.....\$20.60

No. 5, Mill.....\$30.00

Nos. 10, 11, 96.....\$15.60

No. 1 Old Style.....\$10.00

Special.....\$16.25

Giant Rotor Cross Cut.....\$9 doz. \$9.00

Royal, Hand.....\$9 doz. \$4.50

Taintor Positive.....\$9 doz. \$4.75

**Shaving—**

Fox Shaving Sets, No. 30.....\$9 doz. net, \$24.00

**Smith & Hemenway Co.'s.....60%****Sharpeners, Knife—**

Chicago Wheel &amp; Mfg. Co.....70%

Pike Mfg. Co.:

Fast Cut Pocket Knife Hones.....\$1.50

Mounted Kitchen Sand Stone.....\$1.50

Natural Grit Carving Knife Hones.....\$3.00

Quick Cut Emery Carving Knife Hones.....\$1.50

Quick Edge Pocket Knife Hones.....\$2.50

**Skate—**

Smith &amp; Hemenway Co., Eureka.....20%

**Shaves, Spoke—**

Iron.....dos. \$1.10 to \$1.25

Wood.....dos. \$1.75 to \$2.25

Bailey's (Stanley R. &amp; L. Co.).....45%

Razor Edge (Stanley R. &amp; L. Co.).....35%

Iron, 50%: Wood.....35%

Chapin-Stephens Co.....30&amp;30&amp;10%

Goodell's \$9 doz. \$9.00.....15&amp;10%

Wood's F1 and F2.....50%

**Shears—**

Cast Iron.....7 9 in.

Bees.....\$16.00 18.00 20.00 gro.

Good.....\$13.00 15.00 17.00 gro.

Cheap.....\$5.00 6.00 7.00 gro.

Straight Trimmers, &amp;c.....

Best quality Jap.....70&amp;70&amp;10%

Best quality, Nickel.....60&amp;60&amp;10%

Fair quality, Jan.....50&amp;50&amp;10%

Fair quality, Nickel.....75&amp;75&amp;10%

**Tailors' Shears.....40&10%**

Acme Cast Shears.....40&amp;10%

Heinisch's Tailors' Shears.....10%

Wilkinson Shear &amp; Cutlery Co.:

Sheep, 1900 list.....30&amp;10&amp;5%

Grass.....50&amp;10%

Horse or Mule.....50&amp;10%

**Tinners' Snips—**

Steel Blades.....20&amp;5&amp;20&amp;10%

Steel Laid Blades.....40&amp;10&amp;50%

Forged Handles, Steel Blades, Berlin.....50%

Heinisch's Snips.....40%

Jennings &amp; Griffin Mfg. Co.'s 6 1/2 to 10 in.....50%

Niagara Snips.....40%

P. S. &amp; W. Forged Handles.....20%

**Pruning Shears—**

Cronk's Hand Shears.....33 1/2%

Cronk's Wood Handle Shears.....33 1/2%

Dixson's Combined Pruning Hook and Saw.....\$18.00

Dixson's Pruning Hook only, \$9 doz. \$12.00.....25%

John T. Henry Mfg. Co.:

Pruning Shears, all grades.....40%

P. S. &amp; W. Co.....30%

Wilkinson Shear &amp; Cutlery Co.:

Hedge, Wilcut Brand.....60&amp;10%

Lawn and Border, Wilcut Brand.....60&amp;10%

**Sheaves—Sliding Door—**

Stowell's Anti-Friction.....50%

Reading.....40%

R. &amp; E. list.....15%

Wrightsville Hatfield Pattern.....87 1/2%

**Sliding Shutter—**

Reading list.....40%

R. &amp; E. list.....10%

**Shells—Shells, Empty—**

Brass Shells, Empty:

Climax, 10 and 12 gauge.....65&amp;10%

Club, Rival, 65&amp;5%; First Quality.....60&amp;5%

Paper Shells, Empty:

New Rapid, 10, 12, 16 and 20 gauge.....25&amp;10%

Climax, 10 and 12 gauge; Acme, 10, 12, 16 and 20 gauge; Ideal, 10, 12, 16 and 20 gauge; Leader grade.....25&amp;5%

Union, League, 12 and 12 gauge.....25%

Rival Grade.....25%

New Climax, DeLancey, 10, 12, 14, 16 and 20 gauge; Climax, 14, 16 and 20 gauge.....20&amp;5%

Challenge, Monarch, 10, 12, 16 and 20 gauge; League, Union, 14, 16 and 20 gauge; Repeater Grade.....20%

Expert, 10, 12, 16 and 20 gauge.....35&amp;5%

Robin Hood, Low Brass.....20&amp;5%

Robin Hood, High Brass.....30&amp;5%

Indian, for Black Powder.....25&amp;5%

**Shells, Loaded—**

Loaded with Black Powder.....40%

Loaded with Smokeless Powder, medium grade.....40&amp;5%

Loaded with Smokeless Powder, high grade.....40&amp;10&amp;10%

Robin Hood:

Smokeless Robin Hood, Low Brass.....50%

Smokeless Comets, High Brass.....50&amp;10&amp;5%

Indian, Black Powder.....40&amp;5%

Winchester:

Smokeless Repeater Grade.....40&amp;5%

Smokeless Leader Grade.....40&amp;10&amp;10%

Black Powder.....40%

**Shingles, Metal—Per Sq.**

Edwards Mfg. Co.:

Painted, Galv.....\$4.25

14 x 20.....\$6.00

10 x 14.....\$4.50

7 x 10.....\$4.75

Wheeling Corrugating Co.:

Tin Painted, Galv.....\$4.25

Dixie, 14 x 20 in.....\$4.25

Dixie, 10 x 14 in.....\$4.50

Dixie, 7 x 10 in.....\$4.75

**Shoes, Horse, Mule, &c.—**

F.o.b. Pittsburgh:

Iron.....per keg \$4.10

Steel.....per keg \$3.85

Burden's, all sizes.....per keg \$3.90

**Shot—**

25-lb. bag.....\$1.



**Scythe Stones—**  
Chicago Wheel & Mfg. Co.:  
Gem, gro, 10 in., \$8.00; 12 in., \$10.80.  
Norton Alundum Scythe Stones:  
Less than 10 gross lots, \$8.00.  
Lots of 10 gross or more, \$4.50.  
Price list, Co. 1901 list:  
Black Diamond S. S., gro, \$12.00  
Lamotte S. S., gro, \$11.00  
White Mountain S. S., gro, \$9.00  
Green Mountain S. S., gro, \$8.00  
Extra Indian Pond S. S., gro, \$7.50  
No. 1 Indian Pond S. S., gro, \$7.00  
No. 2 Indian Pond S. S., gro, \$4.50  
Leader Red End S. S., gro, \$4.50  
Quick Cut Emery, gro, \$10.00  
Pure Corundum, gro, \$18.00  
Crescent, gro, \$7.00  
Emery Scythe Rifles, 2 Coat, \$8  
Emery Scythe Rifles, 4 Coat, \$10  
Emery Scythe Rifles, 4 Coat, \$12  
Balance of 1904 list 33 1/2%

**Stoppers, Bottle—**  
Victor Bottle Stoppers, gro, \$9.00

**Stops—Bench—**  
Millers Falls, 15 1/2%  
Morrill's, doz, No. 1, \$10.00, 50%  
Morrill's, No. 2, 50%

**Door—**  
Chapin-Stephens Co., 60 1/2% to 10%

**Plane—**  
Chapin-Stephens Co., 20%

**Straps—Box—**  
Cary's Universal, case lots, 20 1/2% to 10%

**Stretchers, Carpet—**  
Cast Iron, Steel Points, doz, 60 1/2% to 10%

**Socket—**  
Bullard, doz, \$1.00  
Excelsior Stretcher and Tack Hammer Combined, doz, \$6.00, 20%

**Woven Fence—**  
Franklin, ea, \$3.75

**Strops, Razor—**  
Star Diagonal Strop, 25%

**Stuffers, Sausage—**  
Enterprise Mfg. Co., list Jan. 1, 1902, 25 1/2% to 7 1/2%

**Sweepers, Carpet—**  
National Sweeper Co., doz, \$120.00

**Plated—**  
Hepplewhite, Roller Bearing, \$11.00  
Sheraton, Roller Bearing, N'kel, \$40.00  
Ye Mission, Roller Bearing, Oxidized Copper, \$36.00

**Transparent, Roller Bearing, Plate Glass top, Nickel—**  
National Queen, Roller Bearing, \$27.00  
Fancy Veneers, \$27.00  
Loyal, Roller Bearing, Veneers, \$27.00  
Nickel, \$27.00  
Triple Medal, Roller Bearing, \$27.00  
Nickel, \$27.00  
Marion, Roller Bearing, N'kel, \$24.00  
Marion, Roller Bearing, \$21.00  
Monarch, Roller Bearing, N'kel, \$22.00  
Perpetual, Regular B'rs, Jap, \$20.00  
Perpetual, Regular B'rs, Jap, \$18.00  
Monarch Extra (17 in. case), Roller Bearing, Nickel, \$36.00  
Monarch Extra (17 in. case), Roller Bearing, Japanned, \$33.00  
Auditorium (26 in. case), Roller Bearing, Nickel, \$54.00  
Mammoth (30 in. case), Roller Bearing, Nickel, \$60.00

**NOTE—Rebates: 50c per dozen on three-dozen lots; \$1 per dozen on five-dozen lots; \$2 per dozen on ten-dozen lots; \$2.50 per dozen on twenty-five-dozen lots.**

**Streator Metal Stamping Co.**  
Eureka Japanned, doz, \$15.00  
Model A, Sterling, doz, \$25.00  
Model A, Sterling, Nickel, doz, \$25.00  
Model B, Sterling, Japanned, doz, \$23.00  
Model B, Sterling, Japanned, doz, \$21.00  
Model C, Sterling, doz, \$21.50  
Model D, Sterling, doz, \$19.50

**Tacks, Finishing Nails, &c.**  
New List, May 1, 1905.

**American Carpet Tacks, 90 1/2% to 30%**  
**American Cut Tacks, 90 1/2% to 30%**  
**Swedes Cut Tacks, 90 1/2% to 30%**  
**Swedes Upholsterers', 90 1/2% to 30%**  
**Gimp Tacks, 90 1/2% to 30%**  
**Lace Tacks, 90 1/2% to 30%**  
**Trimmers' Tacks, 90 1/2% to 30%**  
**Looking Glass Tacks, 90 1/2% to 30%**  
**Bill Posters' and Railroad Tacks, 90 1/2% to 30%**  
**Hungarian Nails, 80 1/2% to 20%**  
**Finishing Nails, 70 1/2% to 30%**  
**Trunk and Clout Nails, 80 1/2% to 30%**

**NOTE—The above prices are for Standard Weights. An extra 5% is given on Medium Weights, and an extra 10 1/2% is given on light weights.**

**Miscellaneous—**  
Double Pointed Tacks, 90 1/2% to 5 tens

**See also Nails, Wire.**

**Tanks, Oil—**  
Emerald, R. M. Co., 30-gal, \$3.40  
Emerald, R. M. Co., 60-gal, \$4.25  
Queen City, R. M. Co., 30-gal, \$3.65  
Queen City, R. M. Co., 60-gal, \$4.50

**Tapes, Measuring—**  
American Assoc's Skin, 50 1/2% to 7%

**Patent Leather, 25 1/2% to 50 1/2%**  
**Steel, 35 1/2% to 50 1/2%**  
**Chesterman's, 25 1/2% to 50 1/2%**  
**Keuffel & Esser Co., 40 1/2% to 50 1/2%**  
**Favorite, Duck and Leather, 25 1/2% to 50 1/2%**  
**Metallie and Steel, lower list, 35 1/2% to 50 1/2%**  
**Larkin's, 40 1/2% to 50 1/2%**  
**Asses' Skin, 40 1/2% to 50 1/2%**

**Metallie, 30 1/2% to 50 1/2%**  
**Patent Bend, Leather, 25 1/2% to 50 1/2%**  
**Pocket, 40 1/2% to 50 1/2%**  
**Steel, 35 1/2% to 50 1/2%**  
**Wiebusch & Hilger: 35 1/2% to 50 1/2%**  
**Chesterman's Metallic, No. 34L, etc., 25 1/2% to 50 1/2%**  
**Chesterman's Steel, No. 1038L, etc., 35 1/2% to 50 1/2%**

**Teeth, Harrow—**  
Steel Harrow Teeth, plain or headed, 5/8-inch and larger, per 100 lbs, \$2.75 to \$3.00

**Thermometers—**  
Tin Case, 80 1/2% to 10 1/2% to 5%

**Ties, Bale—Steel Wire—**  
Single Loop, 80 1/2% to 5%

**Monitor, Cross Head, 60 1/2% to 65%**  
**Brick Ties—**  
Niagara Brick Ties, 25 1/2% to 10%

**Tinners' Shears, &c.—**  
See Shears, Tinners', &c.

**Tinware—**  
Stamped, Japanned and Pieced, sold very generally at net prices.

**Tire Benders, Upsetters, &c.**  
See Benders and Upsetters, Tire.

**Tools—Coopers—**  
L. & I. J. White, 20 1/2% to 5%

**Hay—**  
Myers' Hay Tools, 50 1/2% to 50%

**Stowell's Hay Carriers, 50%**  
**Forks, 50%; Fork Pulleys, 50%**  
**Miniature—**  
Smith & Hemenway Co.'s, David-son, 25%

**Saw—**  
Atkins' Cross Cut Saw Tools, 35 1/2% to 50 1/2%

**Simonds' Improved, 30 1/2% to 50 1/2%**  
**Simonds' Crescent, 25%**  
**Ship—**  
L. & I. J. White, 25%

**Transom Lifters—**  
See Lifters, Transom.

**Traps—Fly—**  
Balloon, Globe or Acme, doz, \$1.15 to \$1.25; gro, \$11.50 to \$12.00

**Harper, Champion or Paragon, doz, \$1.25 to \$1.40; gro, \$13.00 to \$15.50**  
**Game—**  
Imitation Oneida, 75 1/2% to 75 1/2%

**Newhouse, 40 1/2% to 45 1/2%**  
**Hawley & Norton, 65%**  
**Victor, 70 1/2% to 80%**  
**Oneida Community Jump, 50%**

**Mouse, Wood, Choker, doz, holes 8 1/2" to 9 1/2"**  
**Mouse, Round or Square Wire, doz, 85 1/2% to 90 1/2%**  
**Marty French Rat and Mouse Traps (Genuine):**  
No. 1, Rat, doz, \$13.25; case of 24, \$11.50 doz.  
No. 3, Rat, doz, \$6.50; case of 50, \$5.75 doz.  
No. 3 1/2, Rat, doz, \$5.25; case of 50, \$4.70 doz.  
No. 4, Mouse, doz, \$3.85; case of 150, \$3.00 doz.  
No. 5, Mouse, doz, \$3.00; case of 150, \$2.25 doz.

**Trimmers, Spoke—**  
Wood's E. I., 50%

**Trowels—**  
Diastion Brick and Pointing, 25%

**Diastion Plastering, 20%**  
**Diastion "Standard Brand" and Garden Trowels, 30%**  
**Kohler's Steel Garden Trowels, gro, 5 in., \$4.80; 6 in., \$6.00.**  
**Never-Break Steel Garden Trowels, gro, \$2.00**  
**Rose Brick and Plastering, 25 1/2% to 50 1/2%**  
**Woodrough & McParlin, Plastering, 25%**

**Trucks, Warehouse, &c.—**  
B. & L. Block Co.:  
New York Pattern, 50 1/2% to 10%

**Western Pattern, 60 1/2% to 10%**  
**Handy Trucks, doz, \$16.00**  
**Grocery, doz, \$15.00**  
**Daisy Store Trucks, Improved Pattern, doz, \$18.50**  
**McKinney Trucks, each \$10.00**  
**Model Store Trucks, doz, \$18.50**

**Tubs, Wash—**  
M'F'gr's list, price per gross.

**No. 0 1 2 3**  
**Galvanized, \$64 \$76 \$84 \$96 10 1/2%**  
**Galvanized Wash Tubs (R. M. Co.):**  
No. 1 2 3 10 20 30  
Per doz, net, \$5.70 6.30 7.20 6.60 7.20 8.10

**Twine, Miscellaneous—**  
Flax Twine:  
No. 9, 1/4 and 1/2-lb. Balls, 29 1/2% to 25 1/2%

**No. 12, 1/4 and 1/2-lb. Balls, 21 1/2% to 22 1/2%**  
**No. 18, 1/4 and 1/2-lb. Balls, 18 1/2% to 20 1/2%**  
**No. 24, 1/4 and 1/2-lb. Balls, 17 1/2% to 19 1/2%**  
**No. 36, 1/4 and 1/2-lb. Balls, 16 1/2% to 18 1/2%**  
**Chalk Line, Cotton 16-lb. Balls, 26 1/2% to 31 1/2%**  
**Cotton Mops, 6, 9, 12 and 15 lb. to doz, 11 1/2% to 19 1/2%**  
**Cotton Wrapping, 5 Balls to lb., according to quality, 15 1/2% to 23 1/2%**  
**American 2-Ply Hemp, 1/4 and 1/2-lb. Balls, 17 1/2% to 15 1/2%**  
**American 3-Ply Hemp, 1-lb. Balls, 15 1/2% to 16 1/2%**  
**India 2-Ply Hemp, 1/4 and 1/2-lb. Balls (Spring Twine), 10 1/2% to 11 1/2%**  
**India 3-Ply Hemp, 1-lb. Balls, 10 1/2% to 11 1/2%**  
**India 3-Ply Hemp, 1 1/2-lb. Balls, 10 1/2% to 11 1/2%**  
**2, 3, 4 and 5-Ply Jute, 16-lb. Balls, 12 1/2% to 13 1/2%**  
**Mason Line, Linen, 1/2-lb. Bls, 47c**  
**No. 26 1/2 Mattress, 1/4 and 1/2-lb. Balls, according to quality, 30 1/2% to 60 1/2%**  
**Wool, 3 to 6 ply, B 9 1/2; A 10 1/2**

**Vises—**  
Solid Box, 50 1/2% to 10%

**Parallel—**  
Athal Machine Co.:  
Simpson's Adjustable, 40%

**Standard, 40%**  
**Amateur, 25%**  
**Columbian Hdw. Co., 40%**  
**Emmert Universal: 40%**  
**Pattern Makers' No. 1, \$15.00; No. 2, \$12.50.**  
**Machinist and Tool Makers' No. 4A, \$12.50; No. 6A, \$10.00; No. 10A, \$22.50.**  
**Presto Quick Acting, Adjustable Jaw, 25 1/2% to 10%; Solid Jaw, 25 1/2% to 10%.**  
**Tiger Machinists', 35 1/2% to 40%**  
**Fisher & Norris Double Screw, net, each, Nos. 2, \$10.50; 3, \$16.00; 4, \$20.50; 5, \$27.00.**  
**Hollands: 40 1/2% to 50 1/2%**  
**Machinists' 40 1/2% to 50 1/2%**  
**Keystone 65 1/2% to 70%**  
**Lewis Tool Co. 30%**  
**Adjustable Jaw, 50%**  
**Monarch, 50%; Solid Jaw, 50%**  
**Massey Vice Co.: 40%**  
**Clincher, 15%; Lightning Grip, 15%**  
**Merrill, 15%**  
**Millers Falls Oval Slide Pattern, 60 1/2% to 70%**  
**Parker's: 20 1/2% to 25%**  
**Victor, 20 1/2% to 25%**  
**Vulcan, 40 1/2% to 45%**  
**Combination Pipe, 55 1/2% to 60%**  
**Prentiss, 20 1/2% to 25%**  
**Snediker's X L, 33 1/2%**  
**Stephens, 33 1/2%**

**Saw Filers—**  
Diastion D 3 Clamp and Guide, doz, \$24.00 30%; Clamps, 30%

**Perfection Saw Clamps, doz, \$4.50**  
**Reading, 30 1/2% to 50%**  
**Wentworth's Rubber Jaw, Nos. 1, 2 and 3, 50%**

**Wood Workers—**  
Massey Vice Co.:  
Lightning Grip, 15%; Perfect, 15%

**Wyman & Gordon's Quick Action, 6 in., \$6.00; 9 in., \$7.00; 14 in., \$8.00.**  
**Miscellaneous—**  
Holland's Combination Pipe, 60 1/2% to 65%

**Parker's Combination Pipe, 40%**  
**87 Series, 60%; 187 Series, 60 1/2%; No. 870, 40%.**

**Wads—Price per M.—**  
B. E., 11 up, 60 1/2%  
B. E., 9 and 10, 70 1/2%  
B. E., 8, 80 1/2%  
B. E., 7, 80 1/2%  
P. E., 11 up, \$1.00  
P. E., 9 and 10, 1.25  
P. E., 8, 1.50  
P. E., 7, 1.50  
Ely's B. E., 11 and larger, \$1.70 to \$1.75  
Ely's P. E., 12 to 20, \$3.00 to \$3.25

**Ware, Hollow—**  
Cast Iron, Hollow—  
Stove Hollow Ware:  
Enameled, 45 1/2% to 10%

**Ground, 50 1/2% to 65%**  
**Plain or Unground, 60%**  
**Country Hollow Ware, per 100 lbs., \$3.00**  
**White Enameled Ware:  
Mastin Kettles, 65 1/2% to 10%**  
**Covered Wares:  
Tinned and Turned, 35 1/2% to 10%**  
**Enameled, 45 1/2% to 10%**  
**See also Pots, Glue.**

**Enameled—**  
Agate Nickel Steel Ware, 60%

**Iron Clad Ware, 70 1/2% to 10%**  
**Lava, Enameled, 40 1/2% to 10%**  
**Never Break Enameled, 50%**

**Tea Kettles—**  
Galvanized Tea Kettles:  
Inch, 6 7 8 9  
Each, 45 1/2 50 1/2 55 1/2 65 1/2

**Steel Hollow Ware—**  
Avery Spiders and Griddles, 65 1/2% to 65 1/2%

**Avery Kettles, 60 1/2% to 60 1/2%**  
**Porcelain, 50 1/2% to 50 1/2% to 10%**  
**Never Break Spiders and Griddles, 65 1/2%**  
**Never Break Kettles, 65 1/2%**  
**Solid Steel Spiders and Griddles, 65 1/2%**  
**Solid Steel Kettles, 60 1/2%**

**Warmers, Foot—**  
Pike Mfg. Co., Soapstone, 40 1/2% to 40 1/2%

**Washboards—**  
Solid Zinc, doz, \$3.00

**Crescent, family size, bent frame, \$3.70**  
**Red Star, family size, stationary protector, \$3.70**  
**Double Zinc Surface:  
Saginaw Globe, family size, stationary protector, \$3.25**  
**Cable Cross, family size, stationary protector, \$3.40**  
**Single Zinc Surface:  
Nalad, family size, open back, perforated, \$2.90**  
**Single Saginaw Globe, \$2.75**  
**Brass Surface:  
Brass King, Single Surface, open back, \$3.65**  
**Nickel Plate Surface:  
No. 1001 Nickel Plate, Single Surface, \$3.65**  
**Glass Surface:  
Glass King, Single Surface, open back, \$3.65**  
**Enamel Surface:  
Enamel King, Single Surface, ventilated back, \$3.65**

**Washers—Leather, Axle—**  
Solid, 60 1/2% to 10 1/2% to 10 1/2%

**Patent, 90 1/2% to 90 1/2%**  
**Coll: 1/4 1 1 1/4 1 1/2 per doz**  
**10 1/2 11 1/2 12 1/2 per doz**  
**Size bolt, 5-16 3/4 1 1/4 1 1/2 3/4**  
**Washers, \$5.90 5.00 3.70 3.50 3.30**  
**The above prices are based on \$5.50 off list.**

**In lots less than one keg add 1/4¢ per lb.; 5-lb. boxes add 1/4¢ to list.**  
**Cast Washers—**  
Over 1/2 inch, barrel lots, per lb, 1 1/4¢ to 2¢

**Weather Strip—**  
Flexible Felt—  
Lined, per 100 ft., \$2; \$3; \$4, 40 1/2% to 10%

**Moore's Unlined, per 100 ft., \$2; \$3; \$4, 50 1/2% to 10%**  
**Wedges—**  
Old Finish, 10-lb, 2.70 to 2.80¢

**Weights—Hitching—**  
Covert Mfg. Co., 30 1/2% to 2%

**Sash—**  
Per ton, f.o.b. factory:  
Eastern District, \$30.00

**Southern Territory, \$23.00 to \$24.00**  
**Western and Central Districts, \$22.00 to \$28.00**  
**Wheels, Well—**  
8-in., \$1.55; 10-in., \$2.00; 12-in., \$2.50; 14-in., \$4.00.

**Wire and Wire Goods—**  
Bright and Annealed:  
6 to 9, 80 1/2% to 80 1/2%

**10 to 18, 80 1/2% to 80 1/2%**  
**19 to 26, 80 1/2% to 80 1/2%**  
**27 to 36, 80 1/2% to 80 1/2%**  
**Galvanized:  
6 to 9, 75 1/2% to 75 1/2%**  
**10 to 14, 75 1/2% to 75 1/2%**  
**15 to 16, 72 1/2% to 10 1/2% to 2 1/2%**  
**19 to 26, 75 1/2% to 75 1/2%**  
**27 to 36, 72 1/2% to 72 1/2%**  
**Coppered:  
6 to 9, 75 1/2% to 75 1/2%**  
**10 to 14, 75 1/2% to 75 1/2%**  
**15 to 18, 72 1/2% to 10 1/2% to 2 1/2%**  
**19 to 26, 75 1/2% to 75 1/2%**  
**27 to 36, 75 1/2% to 75 1/2%**  
**Tinned:  
6 to 14, 75 1/2% to 10 1/2% to 2 1/2%**  
**15 to 18, 75 1/2% to 75 1/2%**  
**Brass, 2 1/2¢ lb., base**  
**Copper, 3 1/2¢ lb., base**  
**Cast Steel Wire, 50%**

**Spooled Wire—**  
Annealed and Tinned, 70 1/2% to 75 1/2% to 10%

**Brass and Copper, 60 1/2% to 65 1/2% to 10%**  
**Retailers' Assortments, per doz, \$2.25 to \$2.50**  
**Wire Clothes Line, see Lines.**  
**Wire Picture Cord, see Cord.**

**Bright Wire Goods—**  
Steel Wire Goods, 90 1/2% to 10%

**Brass Wire Goods, 85 1/2% to 85 1/2%**  
**Brass Cup and Shoulder Hooks, 80 1/2% to 85 1/2%**  
**Wire Cloth and Netting—**  
Galvanized Wire Netting, 80 1/2% to 80 1/2% to 7 1/2%

**Painted Screen Cloth, 100 ft., \$1.30**  
**Standard Galv. Hardware Grade:  
Nos. 2, 2 1/2 & 3 Mesh, sq. ft. 3 1/2¢**  
**Nos. 4 and 5 Mesh, sq. ft. 3 1/2¢**  
**No. 6 Mesh, sq. ft. 3 1/2¢**  
**No. 8 Mesh, sq. ft. 4 1/2¢**

**Wire, Barb—See Trade Report**  
**Wrenches—**  
Agricultural, 75 1/2% to 75 1/2% to 10%

**Alligator or Crocodile, 70 1/2% to 75 1/2%**  
**Basin Pattern 8 Wrenches, 70 1/2% to 70 1/2%**  
**Drop Forged 8, 45 1/2% to 45 1/2%**  
**Acme, 60 1/2% to 60 1/2%**  
**Alligator Pattern, 70%; Bull Dog, 70%**  
**Bemis & Call's:  
Adjustable 8, 40%; Adjustable 8 Pipe, 40%; Briggs Pattern, 40%; Combination Bright, 40%**  
**Steel Handle Nut, 50%**  
**Combination Black, 40 1/2% to 50%**  
**Merrick Pattern, 50%**  
**Boardman's, 40%**  
**Coe's Genuine Knife Hdl., 40 1/2% to 50 1/2%**  
**Coe's Genuine Steel Hdl., 40 1/2% to 50 1/2%**  
**Coe's Genuine Key Model, 40 1/2% to 50 1/2%**  
**Coe's, Genuine Hammer Handle, 40 1/2% to 50 1/2%**  
**Coe's "Mechanics", 40 1/2% to 10 1/2% to 50 1/2%**  
**Donohue's Engineer, 40 1/2% to 10%**  
**Eagle, 70%**  
**Elgin Wrenches, doz, \$6.25**  
**Elgin Rethreading Attachment, only with one die, doz, \$8.25**  
**Elgin Extra Dies, doz, \$3.00**  
**Elgin Extra Jaws, doz, \$1.75**  
**Elgin Monkey Wrench Pipe Jaws, doz, \$2.10**  
**Gem Pocket, 30%**  
**Hercules, 70%**  
**W & B. Machinist:  
Case lots, 50 1/2% to 50%**  
**Less than case lots, 50%**  
**W & B. Railroad Special:  
Case lots, 50%**  
**Less than case lots, 40 1/2% to 50%**  
**Solid Handles, P. S. & W., 50 1/2%**  
**Stillson, 65%**  
**Vulcan Chain, 50%**

**Fruit Jar—**  
Triumph Fruit Jar Wrench, 5 gross lots, \$7.50; doz, \$9.00

**Wrought Goods—**  
Stables, Hooks, etc., list March 17, '92, 87 1/2% to 87 1/2% to 10%

**Yokes, Ox, and Ox Bows—**  
Fort Madison's Farmers' & Freighters', list net

**Zinc—**  
Sheet, per 100 lb., \$3.50 to \$3.75

For the Table of "Current Metal Prices" see the First Issue of Every Month.

